UPDATE OF THE
NOISE ELEMENT OF THE GENERAL PLAN
OF THE
CITY OF CAMARILLO

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Prepared for

CITY OF CAMARILLO
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INTRODUCTION

The City of Camarillo Noise Element of the General Plan is a comprehensive program for including noise control in the Camarillo planning area. The fundamental goals of the Noise Element are to:

1) Provide Camarillo with noise environment information in the form of CNEL contours so that noise may be effectively considered in the land use planning process;

2) Develop Noise Standards, Policies and Implementation Measures to avoid incompatible land uses due to excessive noise; and,

3) Protect existing regions within Camarillo where noise environments are deemed acceptable and protect existing and future areas throughout Camarillo that are considered to be noise sensitive.

Noise abatement in the planning process is accomplished through the requirement of noise study reports which demonstrate that a proposed development will comply with the noise standards and policies set forth in the Camarillo Noise Element. The noise study reports should be prepared by persons with demonstrated experience in noise control engineering. Noise study reports should be required as stated in the Recommended Noise Standards and Recommended Noise Goals and Policies sections for the following types of developments unless previously analyzed under an environmental impact report or mitigated negative declaration:

1. All proposed developments having the potential to be noise generators when:

   a) proposed adjacent to or near existing noise sensitive land uses or

   b) where the proposed development would potentially impact existing land uses where the ambient noise level is currently considered acceptable according to the existing CNEL noise contour tables and maps contained in the Camarillo Noise Element; and,

2. All new developments which are considered noise-sensitive land uses when proposed for locations exposed to excessive levels of noise according to the existing and future noise contour maps contained in the Camarillo Noise Element.

The Noise Element includes implementation measures and possible solutions that address existing and foreseeable noise problems, and serves as a guideline for compliance with the State's noise insulation standards (California, 1988).

Throughout this technical report, a variety of technical terms are used to describe the noise environment in the City of Camarillo. Definitions for these terms are provided in Appendix A.

STATUTORY AUTHORITY

On June 30, 1972 Government Code Section 65302 was amended to require the inclusion of a Noise Element in the General Plan of each city and county. This Government Code Section requires the following:

"(f) A noise element which shall identify and appraise noise problems in the community. The noise element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify, to the extent practicable, as determined by the legislative body, current and projected noise levels for all of the following sources:

(1) Highway and freeways.

(2) Primary arterials and major local streets.

(3) Passenger and freight on-line railroad operations and ground rapid transit systems.

(4) Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.

(5) Local industrial plants, including, but not limited to, railroad classification yards.

(6) Other ground stationary noise sources identified by local agencies as contributing to the community noise environmenta.

Noise contours shall be shown for all of these sources and stated in terms of community noise equivalent level (CNEL) or day-night average level (L_{dn}). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified in paragraphs (1) and (6), inclusive.

The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise.

The noise element shall include implementation measures and possible solutions that address existing and foreseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the state's noise insulation standards."

BACKGROUND ON NOISE

Noise is commonly defined as unwanted sound. It is a pollutant which lowers the quality of life and detracts from the enjoyment of urban living. Sound is quantified in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement

of the loudness of sound is the decibel (dB). Since the human ear is not equally sensitive to sound at all frequencies, a special frequency dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA), which is the most commonly used scale in measuring community noise, performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear and in so doing provides dB(A) readings which better approximate the level of sound we actually hear. The A-weighted sound level is a single number descriptor which is the logarithmic sum of the weighted sound pressure levels in the audible frequency spectrum.

Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressures to a more practical range of values. In terms of human response to noise, a sound 10 dBA higher than another is generally judged to be twice as loud; and 20 dBA higher is four times as loud; and so forth. Everyday sounds in the outdoor and indoor environments normally range from 30 dBA (faint) to 90 dBA (very loud). Examples of various sound levels in different environments are shown in Figure 1.

FACTORS AFFECTING NOISE TRANSMISSION AND MEASUREMENTS

The medium through which noise travels determines, in large part, its speed of travel and its degree of attenuation. Generally, noise travels faster and with less excess attenuation in solids than in other mediums such as air or water. Distance has a direct effect on attenuation. Assuming an unobstructed path, noise pressure and power levels dissipate an equivalent of 6 decibels for every doubling of distance.

Noise can be reflected by barriers such as buildings, walls, vegetation, and topography. The positioning of barriers may, however, create reverberations or a focusing of sound pressure waves which may effectively raise the sound level. When taking sound measurements, therefore, caution must be taken so that instruments are not set up in such areas and record exaggerated readings.

Weather also effects noise transmission and measurement. Relative humidity and temperature affect noise propagation, and their levels should be noted on any noise measurements done. Rain drowns out noise, and, as a result, measurements should not be taken during rainy periods. Noise is maked by wind and when traveling against it, the noise is attenuated. Therefore, measurements should not be made in winds above 5 mph without a windscreen and never above 20 mph.

EFFECTS ON PEOPLE

Noise or unwanted sound is known to have several adverse effects on people. From these known effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. These criteria are based on such known effects of noise on people as hearing loss, speech interference, sleep interference, physiological responses and annoyance. These particular effects are influenced by various factors such as time of day, frequency of the noise and magnitude of the noise. Consequently, an evaluation of a particular

noise effect must taken into account such influencing factors. Each of these potential noise impacts on people are briefly discussed in the following narratives:

Hearing Loss or hearing impairment can be caused by very loud sounds when people are exposed to them over many years. The potential for noise induced hearing loss is more commonly associated with occupational noise exposures in heavy industry or very noisy work environments. Generally, exterior noise affecting the interior of neighborhood dwellings, even in very noisy airport environs, are not sufficiently loud enough to cause hearing loss. The Environmental Protection Agency has established a guideline of 70 dBA L_{eq} (EPA, 1974) as the limit for indoor or outdoor noise in order to protect against hearing loss with an adequate margin of safety. This limit assumes continuous exposure for 40 years. Shorter noise exposure periods would allow higher levels without hearing damage. Whereas excessive noise exposure is rarely continuous in people's lives (i.e., dwelling unit interior noise environments typically range from 35 dBA to 55 dBA), outdoor community noise would not cause hearing damage until a sustained noise exposure of 85 dBA or higher is reached. Then hearing damage might occur only if a noise of 85 dBA or higher continued in a person's life for 40 years (assuming lower noise levels in the person's home). However, regular exposure to extremely loud noises can induce hearing loss in a much shorter time period.

Speech Interference is one of the primary problems with environmental noise. Normal conversational speech is in the range of 60 to 65 dBA and any noise in this range or louder may interfere with communication. There are specific methods of describing speech interference as a function of voice level and the distance between speaker and listener. Figure 2 shows the effects of noise on speech interference.

Sleep Interference is a major noise concern because sleep is the most noise-sensitive human activity. Sleep disturbance studies (FAA, 1985) have identified interior noise levels that have the potential to cause sleep disturbance. Note that sleep disturbance does not necessarily mean awakening from sleep, but can refer to altering the pattern and stages of sleep. Generally, the average noise level in the interior sleeping quarters should not exceed 35 to 40 dBA, and the maximum noise level should not exceed 45 dBA in order to minimize sleep interference.

Physiological Responses are those measurable effects of noise on people which are realized as changes in pulse rate, blood pressure, etc. While such effects can be induced and observed, the extent to which these physiological responses cause harm or are signs of harm is not known.

Annoyance is the most difficult of all noise responses to evaluate. Annoyance is a very individual characteristic and can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing sensitivity but different subjectivity. One's history of prior exposure is important to consider when evaluating noise because people are often affected less if they have been exposed to a given noise before. People may also react differently to a noise with which they have a positive association, such as their pet dogs. Pure tone or narrow band noises are generally more annoying than are noises of wider frequency bands and so should be accounted for. Similarly, impulsive noises such as gunshots have a greater capacity to startle people than do noises with less abrupt onsets.

Recommended Noise Metrics and Assessment Criteria - Community noise is generally not steady and continuous, but fluctuates over time. Under conditions of non-steady noise, some type of statistical noise metric is necessary in order to quantify noise exposure over a period of time using a single-number descriptor. Several such rating scales have been developed for describing the effects of noise on people. The long-term community noise exposure scales most commonly used in the U.S. are based on time-averaged sound levels. They are the 24-hour energy average Equivalent Sound Level ($L_{eq,24h}$) and the Day-Night Average Sound Level (L_{dn}). In the State of California, the Community Noise Equivalent Level (CNEL) is used also. These noise metrics are described in the Glossary of Terms in Appendix A. Examples of typical outdoor Ldn\CNEL levels for various locations are given in Appendix B.

Noise Element metrics. The planning process includes the assessment of community noise and potential noise impacts caused by transportation sources and operations in commercial and industrial areas. Separating residential areas from higher community noise sources and requiring developers to meet noise standards for indoor and outdoor living spaces, are measures used by community planners to maintain acceptable noise environments within the community.

Extensive research has been conducted on human response to exposures at various levels of community noise using the $L_{eq,24h}$, L_{dn}, and CNEL metrics. Figure 3 relates L_{dn}/CNEL noise levels to community reactions based on many of these surveys. For typical community noises, the CNEL usually ranges from 0.5 to 1.0 dB greater than the L_{dn}. Community noise standards are derived from tradeoffs between community response surveys and the economic considerations for achieving the noise standards.

Noise Ordinance metrics. Intermittent, fluctuating or occasional noise, such as industrial or commercial equipment noise, cyclical air conditioning equipment noise, trash collection noise, vehicle noise on private property, construction equipment noise, or other similar noise sources are sometimes very loud, yet not of a long enough duration to exceed community planning noise standards based on a 24 hour time-averaged scale, such as CNEL. These types of noises are more effectively dealt with using a community noise ordinance. To adequately describe intermittent noise, the current commonly used noise metrics are the short-term L_{eq} (such as the hourly or 15 minute L_{eq}), the Percentile Sound Level (L_{xx}, where "xx" is a percentage) and the Maximum Noise Level (L_{max}). The percentile noise level (L_{xx}) maximum noise level and (L_{max}) also are defined in the Glossary of Terms in Appendix A.

Noise ordinances are designed to protect people from non-transportation related noise sources such as existing commercial and industrial equipment, construction equipment, and various other noise producing activities on private property. Noise limits contained in noise ordinances are best specified in terms of a short-term L_{eq} and an L_{max}, and also may include percentile noise level limits. Noise ordinances do not apply to motor vehicle noise on public streets or other transportation related noise sources that are preempted by State or Federal noise standards.

Land Use Noise Compatibility Guidelines - Noise Element land use guidelines should contain information regarding the compatibility of various land uses with environmental noise. It is from these guidelines and standards, that the City of Camarillo planning noise criteria and standards

should be developed. Noise compatibility guidelines have been produced by a number of Federal and State agencies. The following agency guidelines should be considered applicable for the Camarillo Noise Element: the Environmental Protection Agency, the Federal Highway Administration and the State of California Department of Health Services. These guidelines, presented in the following paragraphs, are all based upon 24 hour time-averaged sound level metrics, such as $L_{eq,24h}$, L_{dn}, or CNEL.

The Environmental Protection Agency (EPA) published a widely used and accepted document entitled, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare With an Adequate Margin of Safety*, (EPA, 1974). Table 1 presents compatibility of land uses and requisite noise levels. In this table, 55 dBA L_{dn} is described as the requisite level with an adequate margin of safety for areas with outdoor uses, this includes residences, and institutional areas. This EPA "Levels Document" does not constitute a standard, specification or regulation, but identifies safe levels of environmental noise exposure without consideration of the economic cost for achieving these levels.

The Federal Highway Administration (FHWA) has adopted and published noise abatement criteria for federally funded highway construction projects (FHWA, 1976). The noise abatement criteria specified by the FHWA are presented in Table 2 in terms of the one hour Equivalent Sound Level ($L_{eq,1h}$) measured during peak noise (free-flowing traffic) conditions. The FHWA noise abatement criteria establishes an exterior noise goal of 67 dBA L_{eq} for residential land uses and a residential interior goal of 52 dBA L_{eq}. The noise abatement criteria applies to private yard areas and assumes that typical wood frame homes with windows open provide 15 dB of noise attenuation (outdoor-to-indoor). When traffic noise is expected to approach or exceeds these criteria, noise abatement must be considered.

NOISE CONTOUR DEVELOPMENT METHODOLOGY

The noise environment in the City of Camarillo was determined through a series of noise measurements at selected locations throughout the City (refer to full sized Map 1). By incorporating current and projected street and traffic data along with the noise measurement results into computer noise models, CNEL contours for existing (1995) and future (2015) conditions were developed. The CNEL contours are presented in increments of 5 dBA showing the noise contour ranges from 60 to 75 dBA. Some noise contours were found to be within the rights-of-way of the freeway and city streets and are not depicted on the full sized Noise Contour Maps (Map 2 and Map 3).

The following paragraphs detail the methodology used in the noise measurement surveys and the development of noise contours using computer modeling and data from relevant published reports.

Measurement Procedure - Forty-eight (48) sites were selected for measurement of the noise environment in Camarillo. The sites were reviewed and approved by the Camarillo Department of Planning and Community Development. The measurement locations are shown in Figure 5 (also see Map 1) and are identified along with the measurement results on Table 3.

The measurement system consisted of Larson-Davis model 700 integrating sound level meters, with 3/8-inch microphones, wind screens, tripods and a calibrator. The system meets ANSI specifications for a Type 2 instrument (ANSI,.1983). The system was calibrated by the manufacturer within two months prior to the surveys and was field calibrated during the surveys to insure accurate results. The calibration instruments used by the manufacturer and in the field are traceable to the National Institute of Standards and Technology (NIST).

At 36 of the 48 total measurement sites, noise was monitored for a minimum of fifteen minutes during daytime hours. The noise was monitored for a minimum of 24 hours, at 12 of the measurement sites. At 5 of the 24-hour measurement sites, noise was monitored for the same hour on two or more days. At Site 16, the exterior noise was monitored at both the first and second floor levels of the residence. The energy average (L_{eq}), maximum (L_{max}) and L_{10}, L_{50} and L_{90} percentile noise levels were recorded along with a description of the measurement conditions and noise sources affecting the environment.

Roadway Noise Model - The roadway traffic noise contours developed for the Noise Element were computed using the Highway Traffic Noise Prediction Model developed by the Federal Highway Administration (FHWA, 1978). The FHWA Model uses traffic volume, truck percentages, vehicle speed, and roadway geometry to compute the L_{eq} noise level. A computer code has been written which computes the distances to the CNEL contours from the roadways. The roadway and traffic data used to develop the existing and future CNEL contour distances was obtained from State and City agencies (Caltrans, 1995a; Caltrans, 1995b; Caltrans, 1995c, and Camarillo, 1995). A listing of all the roadways and traffic data used in the computer model is provided in Table 4 for the 1995 case and in Table 5 for the year 2015 conditions.

Railway Noise Assessment - The rail line noise contours developed for the Noise Element were based on Metro Link, Amtrak and Southern Pacific Transportation Company operations data, noise measurements and CNEL calculations reported in noise impact reports prepared for the Rancho Calleguas Townhomes (Tract No. 4758), (WCA, 1991a; WCA, 1991b and WCA, 1994).

Aircraft Noise Assessment - The aircraft noise contours of the Noise Element were developed using CNEL contour data for Camarillo Airport and PMTC Point Mugu current (1990) and future (2010) years. The data are reported in the Airports Comprehensive Land Use Plan Update (Ventura County, 1991). These data are the most recent and considered valid by the County for 1995 and for projections to the year 2015 (Ventura County, 1995).

SUMMARY OF NOISE EXPOSURE

The predominant noise sources in the City of Camarillo, as in most other communities, are the transportation systems. These include major streets and highways, and train and rapid transit operations on rail lines within the City. The noise environment in Camarillo is typical of what would be expected within a suburban community with freeway and rail corridors.

Other sources of noise within the City include industrial and commercial activities, sports activities within public parks, construction activities, aircraft overflights to and from PMTC Point Mugu, aircraft operations of Camarillo Airport, neighborhood noise sources such as power gardening equipment, air conditioning equipment, other human activities and animals, such as barking dogs.

Taking into considerstion all relavant factors for the current year, 1995, and the future 20-year build-out to 2015, the computer modeling yields the current and future CNEL at 50 feet from the roadways, along with the changes, and the distances from the roadways, for both years, for CNEL contours in 5 dB increments. Table 6 shows the modeling results.

Freeways - According to the results of noise measurements and the roadway noise computer model analyses, the Ventura (101) Freeway is the most predominate traffic noise source within the city for both existing and future conditions (refer to Maps 2 and 3).

Major and Minor Arterial Roadways - Roadways which produce the greatest traffic noise currently include Santa Rosa Road, Las Posas Road, Adolfo Road, Lewis Road, Mission Oaks Boulevard, Pleasant Valley Road, Flynn Road and Arneill Road. The average noise increase for roadways in the year 2015 is 1.3 dBA (refer to Table 6). The majority of roadway segments will generate an increase of 3 dBA or less, which is *just perceptible* (refer to Table 8). Three roadway segments, however, are projected to have roadway noise increases of 6.0 to 6.6 dBA, which would be *clearly noticeable*.

In general, most of the land uses along the major roadways is commercial or residential with some mitigation measures incorporated into the design. The mitigation is in terms of soundwalls or setbacks from the roadway. However, there currently are a number of residential homes that are located along some of the major and secondary arterials which are or will be exposed to noise levels greater than 65 CNEL.

Railroads - The Metro Link system, which runs daily light rail commuter trains mornings and afternoons, currently does not produce substantially high noise nor will it in future years. This is due primarily to the lighter trains and engines in use. The required use of warning horns when approaching rail/roadway crossings will continue to generate loud noise for nearby locations during each brief passby.

Amtrak operates passenger rail service north and south bound on the rail line. Its engines and railcars are heavier than Metro Link, however, they are not as heavy as the freight trains. Amtrak trains currently produces moderate to high noise. These trains also generate loud warning horn noise near rail crossings.

The Southern Pacific Transportation Company, which operates freight trains on the rail line in the city, produces significant noise currently. Freight train noise will continue to be significant along the rail corridor in the future. Loud horn noise is generated by freight trains near rail crossings also.

The future projections for the three rail operations are based on a doubling in the total number of train operations which resulted in approximately a 3 dBA increase for the future year. This noise projection was an assumption to estimate the worst potential noise increase. Neither the existing and future railroad noise projections include the effects of train horns near roadway crossing locations along the rail line. Train horns, where used when approaching intersections, would result in significantly larger noise contours for the areas near a crossing.

Aircraft - Current operations for Camarillo Airport result in both 60 and 65 CNEL contours extending beyond the airport boundaries. These contours, however, extend over primarily non-sensitive noise areas. Although future operations are expected to increase, the elimination of noisier turbojets would result in a CNEL decrease by 2015, such that only a reduced 60 CNEL contour would extend beyond the boundaries of the airport.

Current operations at PMTC Point Mugu significantly impact areas south of the city. The 60 CNEL contour extends northeasterly almost to the 101 Freeway near the Pleasant Valley/Santa Rosa interchange. Individual aircraft overflights cause short-term high level noise disturbances along the same northeasterly flight path to the bend in Upland Road and beyond, impacting residential and noise-sensitive land uses. At this time, future operations are projected to remain essentially the same as current operations. However, future operations at PMTC Point Mugu may increase substantially should it become a joint-use facility with commercial aviation.

Agricultural land may be a source of noise at times due to normal farming practices such as tillage of soil, harvesting equipment or pumping of water. These activities or any other farming activity which has been in operation for three years or more which is conducted in a manner consistent with proper and accepted practices as established by similar agricultural operations in the area are exempt from local laws by state government code. Farming operations in and around the city are expected to continue and are encouraged for both economic substance and as a physical definition to the urban area of the city.

RECOMMENDED NOISE STANDARDS

Noise Element - State of California recommended land use compatibility with community noise exposure is given in Figure 4. These suggested noise standards are for community planning purposes.

Residential Noise Element standards. Areas within the 60 CNEL contours represent those areas for which any proposed noise-sensitive land use should be evaluated on a project-specific basis for potential mitigation to meet the City requirements and the State Administrative Code, Title 24 (California, 1988) standard of 45 CNEL for dwelling unit interiors. Dwelling units with open windows will provide about 15 dBA of noise attenuation from the exterior to the interior. Therefore, when the exterior noise level exceeds or is expected in the future to exceed 60 CNEL, the interior noise level will exceed the recommended CNEL 45 standard (e.g., An exterior CNEL of 61 dBA minus 15 dBA, for a residence with open windows, yields an interior CNEL of 46 dBA).

Areas within the 65 CNEL contours represent those areas for which any proposed residential land uses will require mitigation in order to comply with the exterior noise standard. Table 7 represents the suggested noise standards for interior and exterior areas that are considered to be acceptable for noise-sensitive land uses based on noise levels generated by transportation-related noise sources such as automobiles, trucks, and trains.

Commercial Noise Element standards. Areas within the 70 CNEL contours represent those areas for which any proposed commercial land use should be evaluated on a project-specific basis for potential mitigation to meet recommended noise planning requirements for commercial developments.

Industrial Noise Element standards. Areas within the 75 CNEL contours represent those areas for which any proposed industrial land use should be evaluated on a project-specific basis for potential mitigation to meet recommended noise planning requirements for industrial developments.

Noise Ordinance - Standards governing the maximum acceptable noise levels that may be emitted by stationary sources, such as machinery, industrial plants, shopping center operations and other non-transportation related noise sources should be addressed in a noise ordinance. The noise ordinance should be applied to specific projects to help ensure that City residents are not exposed to excessive noise from non-transportation related noise sources and vehicles on private property. It is recommended that the noise standards of a City Noise Ordinance be based on an hourly energy average L_{eq} noise metric. For typical transportation noise sources, the measured hourly L_{eq} usually is between the L_{10} and L_{50} noise levels. The appropriate L_{eq} noise limits for different community zoning would be established within a 10-15 dB range based on the City's goals and commitments regarding the desired ambiance of the community. Higher noise limits would be appropriate for short-term noises. However, such higher short-term noise limits must be easy to measure and verify by metrics such as the hourly percentile noise level, L_{xx}. An absolute maximum noise level limit, L_{max}, which is commonly 20 dBA greater than an hourly L_{50} noise limit is also recommended.

The noise ordinance also should contain a nighttime noise standard (10 p.m. to 7 a.m.) for residential and commercial land use that is 10 dBA lower than the respective daytime limits.

Noise study reports should be required for: 1) new residential and other noise-sensitive developments locating inside the 60 CNEL contours as indicated on Figures 6 and 7 (refer to Map 2 and Map 3, respectively); and 2) any new development with noise-generating activities which would potentially exceed noise ordinance criteria at nearby residential and other noise-sensitive land uses.

RECOMMENDED NOISE ELEMENT GOALS AND POLICIES

The purpose of the City of Camarillo Noise Element of the General Plan is to provide a quality of life by minimizing the impact of new noise sources and requiring noise sensitive areas to be

protected from noise. The following goals and policies are recommended to achieve that purpose and provide direction for the City to effectively control community noise.

LAND USE PLANNING GOAL AND POLICIES

Noise and land use conflicts should be avoided by properly considering noise issues during the planning, design, approval and permitting process for new developments.

Goal 1: The City of Camarillo should address the reduction of noise impacts as part of the land use planning process.

Policy 1. The City adopt appropriate noise limits for the various land classifications throughout the community.

Policy 2. The City seek to achieve lower noise near schools, houses of worship, hospitals, convalescent homes, and other areas of greater noise sensitivity, by prohibiting the location of noise generating uses in close proximity to noise sensitive uses.

Policy 3. The City require developers to submit noise assessment reports during the project planning process to identify potential noise impacts to their own developments and on nearby residential and noise sensitive land uses. New developments should be required to incorporate appropriate noise mitigation measures in their project designs, in order to meet the standards contained in this Element, whenever feasible.

Policy 4. The City, through the Building Department, will require that the State noise insulation standards for exterior-to-interior and for party walls and floor/ceiling noise control be applied to new single-family dwellings as well as multi-family structures.

Policy 5. The City, through the Building Department, will require that the State noise insulation standards for exterior-to-interior and for party walls and floor/ceiling noise control be applied where legally possible to the conversion of existing apartments into condominiums.

TRANSPORTATION SYSTEM NOISE CONTROL GOAL AND POLICIES

The analysis of transportation-related noise should consider future conditions to the year 2015. In those cases where transportation system noise degrades the environment, the City should require the reduction of transportation system noise as much as is feasible and practical.

Goal 2: The City should require practical measures to reduce noise impacts from transportation system noise sources.

Policy 6. The City require construction of soundwalls, berms or other noise barriers to mitigate roadway and rail line noise emissions, where necessary and/or feasible.

Policy 7 The City encourage contractors to incorporate appropriate noise mitigation measures, such as limiting the hours of construction, for new and upgraded roadway projects in the City of Camarillo, when adjacent to nearby noise sensitive land uses.

Policy 8 The City strive to reduce transportation system noise impacts through the design and coordination of transportation infrastructure and circulation.

Policy 9. Where beneficial to noise sensitive land use, the City should enforce State enacted vehicle noise limits in cooperation with the Ventura County Sheriff's Department, the California Highway Patrol and the State Department of Health Services.

Policy 10. The City encourage a reduction of engine runups and flight operations for Camarillo Airport and PMTC Point Mugu which currently impact the community.

Policy 11. The City encourage the Southern Pacific Transportation Company (or its successors) to reduce noise generated by rail line operations within the city. One method for reducing railroad noise is to replace existing standard crossings with a modified design which utilizes a concrete pad on a rubberized support base. This is an effective method for reducing noise at railroad crossings. One of the most vital and effective means to reduce rail system noise levels is through proper equipment maintenance. This includes grinding wheels regularly, removing flat wheels and installing wheel-flat detectors to identify rail cars that need maintenance. Several other methods for reducing noise impacts due to rail operations are summarized in Appendix C.

COMMUNITY (NON-TRANSPORTATION SYSTEM) NOISE CONTROL GOAL AND POLICIES

The adoption of an enforceable noise ordinance would provide for the reduction of non-transportation system noise impacts within the City of Camarillo.

Noise complaints regarding community sources received by the City should be referred to the Department of Planning and Community Development during normal working hours and to the Police Department after regular work hours. These respective departments will investigate the complaints and notify and/or cite violators.

Goal 3: The City develop measures to control community noise impacts.

Policy 12. The City review and adopt a practical noise ordinance to limit the hours of use for powered yard and gardening equipment, machinery and other noise disturbances.

Policy 13 The City seek to limit the impact of nuisance noise sources upon residential, commercial and noise sensitive areas.

CITY OPERATIONS NOISE MITIGATION GOAL AND POLICIES

Further efforts on the part of the City itself should be undertaken to encourage the reduction of noise impacts and improve the quality of life in the community.

Goal 4: The City government itself should fully participate in the efforts to reduce noise impacts to both city employees and the community.

Policy 14. The City establish and maintain coordination among the appropriate agencies involved in noise abatement.

Policy 15. The City require its departments and agencies to observe the State and Federal Occupational Safety and Health noise standards.

RECOMMENDED NOISE ELEMENT IMPLEMENTATION PROGRAM AND MEASURES

In order to achieve the goals and policies of the Noise Element, an effective implementation program, developed within the constraints of the City's financial and staffing capabilities, is necessary. The underlying purpose of the implementation program is to provide measures which will reduce the community's exposure to excessive noise and to minimize the future impacts of noise in the City. The following are the measures that the City should consider implementing to control the impacts of noise in the City of Camarillo.

LAND USE PLANNING MEASURES

Community noise issues should be considered during the land use planning process. Data regarding the current year (1995) and projected future year (2015) noise environments within Camarillo should be incorporated into future land use planning decisions. The Noise Element presents the current and projected future noise environments so that the City can include noise impact considerations in the development approval process. The Noise Element is thus intended to minimize future noise and land use incompatibilities.

Measure 1. The City shall utilize standards that specify acceptable noise compatibilities for various land uses throughout the City. Figure 4 shows guidelines used to assess the compatibility of proposed land uses with the various noise environments.

Measure 2. The City shall require the developers of proposed residential and noise sensitive developments seeking to locate within any area of 60 dB CNEL or greater to submit noise study reports for both exterior and interior living spaces prepared by experienced persons with demonstrated expertise in noise assessment and control.

Measure 3. The City shall enforce the provisions of the State of California Uniform Building Code through the Building Department of the City which specifies that the indoor noise levels for

multi-family residential living spaces not exceed 45 dB CNEL due to the combined effect of all exterior and adjacent unit noise sources. The State requires implementation of this standard when the outdoor noise levels exceed 60 dB CNEL. The 1995 and 2015 Noise Contour Maps with 60 dB CNEL can be used to determine when this standard needs to be addressed. The Uniform Building Code (specifically, the California Administrative Code, Title 24, Part 6, Division T25, Chapter 1, Subchapter 1, Article 4, Sections T25-28) requires that "Interior community noise levels (CNEL/LDN) with windows closed, attributable to exterior sources shall not exceed an annual CNEL or LDN of 45 dB in any habitable room." The code requires that this standard be applied to all new hotels, motels, apartment houses and dwellings other than detached single-family dwellings (California, 1988). The City should also, as a matter of policy, apply this standard to single-family dwellings.

Measure 4. The City shall require developers of commercial and industrial projects with noise producing activities that seek to locate near residential or noise sensitive land uses, to submit noise study reports prepared by experienced persons with demonstrated expertise in noise control engineering.

TRANSPORTATION SYSTEM NOISE CONTROL MEASURES

Within the City of Camarillo are a number of transportation system related noise sources including trains, an interstate freeway, major arterials, collector roadways and aircraft overflights. These sources are the major contributors of noise in Camarillo. Reducing their noise impacts on the community is an essential part of the Noise Element. Developers should be required to provide cost-effective noise mitigation measures to meet City standards.

The most efficient and effective means of controlling noise from transportation systems is to reduce noise at the source. However, since the City has little direct control over vehicle, railroad and aircraft noise because of State and Federal preemption (i.e., State Motor Vehicle Noise Standards and Federal Regulations), City efforts should be focused on reducing the impact of transportation system noise on the community. Cooperative efforts with County, State and Federal offices is essential.

Measure 5. The City shall encourage the use of effective noise mitigation measures in the design of roadway improvement projects, consistent with funding capability. The City shall encourage the California Department of Transportation and others to provide for acoustical protection of existing noise sensitive land uses affected by these projects. Soundwall consideration should be requested as part of any Caltrans roadway project. Of particular concern will be the improvements to the Ventura Freeway (State Route 101) and improvements to its interchanges.

Measure 6. The City shall encourage the use of soundwalls, berms and/or other noise attenuation measures in the design of residential and other noise sensitive land uses that are adjacent to and impacted by major roads, rail lines, commercial and industrial areas.

Measure 7. The City shall provide for continued evaluation of truck movements and routes in the City to plan for their effective separation from residential or other noise sensitive land uses, where legally possible.

Measure 8. The City shall encourage enforcement of the State Motor Vehicle Code noise standards for cars, trucks, and motorcycles through coordination with the Ventura County Sheriff's Department, the California Highway Patrol (CHP), the State Department of Health Services, and the Camarillo Police Department. Both the CHP and the State Department of Health Services are able to assist the City in code enforcement and enforcement training (California, 1990).

Measure 9. The City shall establish and maintain close liaison with U.S. Navy authorities (and any successors) responsible for operations at PMTC Point Mugu. While the City has no control over Point Mugu or its operations, concerns regarding noise impacts due to flight operations should be communicated to the proper authorities.

Measure 10. The City shall establish and maintain close liaison with the authorities of the Southern Pacific Transportation Company (and its successors) responsible for railroad operations. While the City has no control over the railroad or its operations, any concerns regarding noise impacts should be communicated to the proper authorities.

COMMUNITY (NON-TRANSPORTATION SYSTEM) NOISE CONTROL MEASURES

People, as well as areas identified as noise sensitive, must be protected from excessive, non-transportation system noise sources including nuisance activities, commercial activities and industrial operations. The noise impacts caused by these activities are most effectively controlled through the application of an enforceable City Noise Ordinance.

Measure 11. The City shall adopt and enforce an updated noise ordinance to ensure that City residents and businesses are not exposed to excessive noise. The ordinance should seek to establish limits on excessive noise within the City due to non-transportation system related noise sources such as amplified speech and music, machinery, commercial and industrial equipment, vehicles on private property, and human behavior. In addition, the ordinance should limit the hours permitting these types of noise sources. The ordinance should require effective noise screening and/or isolation of stationary equipment and machinery, where deemed necessary.

Measure 12. The adopted City Noise Ordinance should establish standards that specify acceptable limits of noise for the various land classifications throughout the City, including a 10 dBA lower nighttime noise limit between the hours of 10 p.m. and 7 a.m. for residential and commercial areas, including hospitals and other in-patient health care facilities.

Measure 13. The adopted City Noise Ordinance should include regulations limiting construction activity to weekdays and Saturdays only between the hours of 7 a.m. and 7 p.m. and prohibiting such activitiy entirely on Sundays and legal holidays unless special permits are issued by City where it can be shown such construction activity will not interfere with noise sensitive areas..

Measure 14. The adopted City Noise Ordinance should regulate the hours permitting operation of engine powered yard and gardening equipment, excessively noisy vehicles on private property and outdoor use of power tools in residential and noise sensitive areas.

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FIGURE 1.

TYPICAL INDOOR AND OUTDOOR SOUND LEVELS

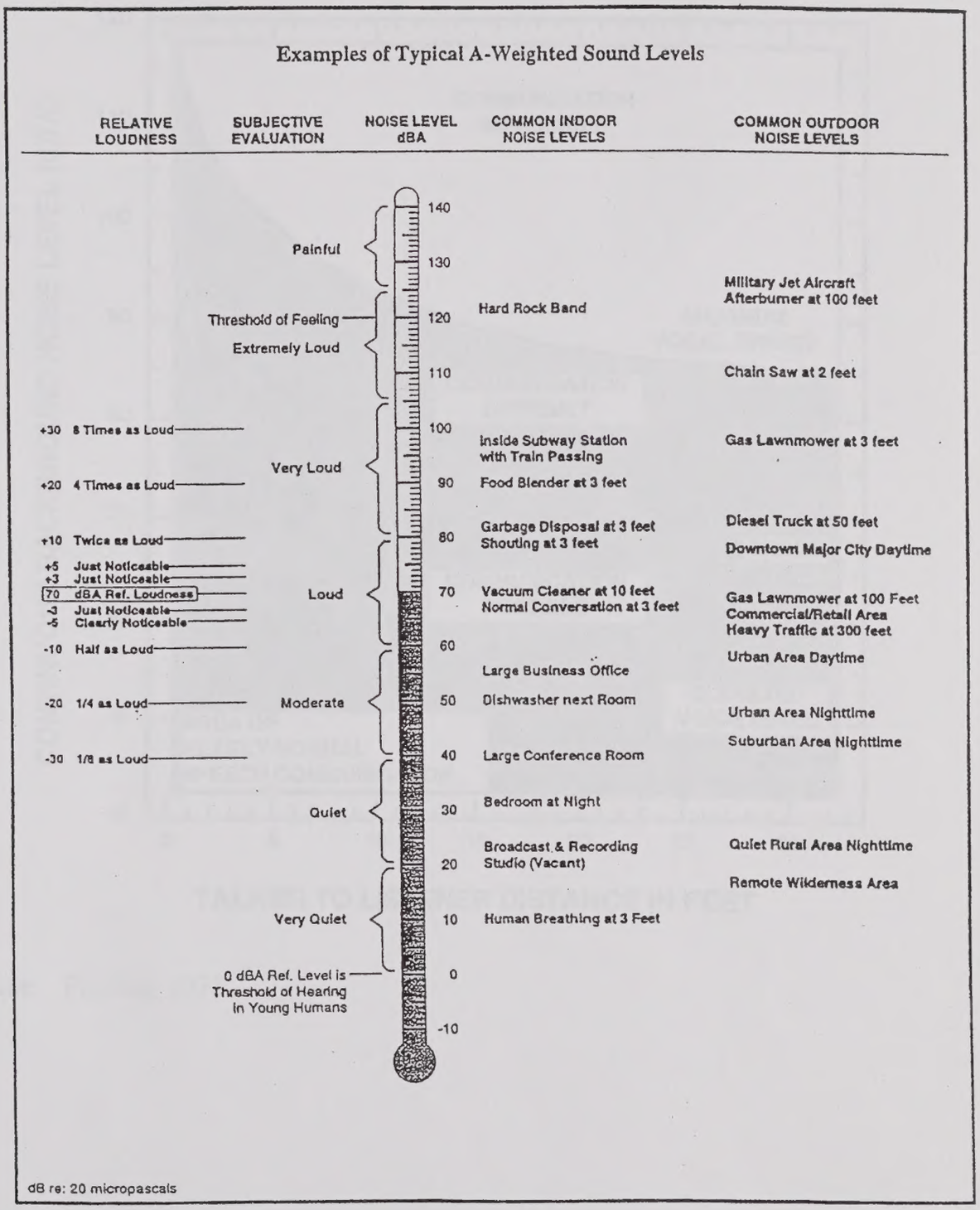
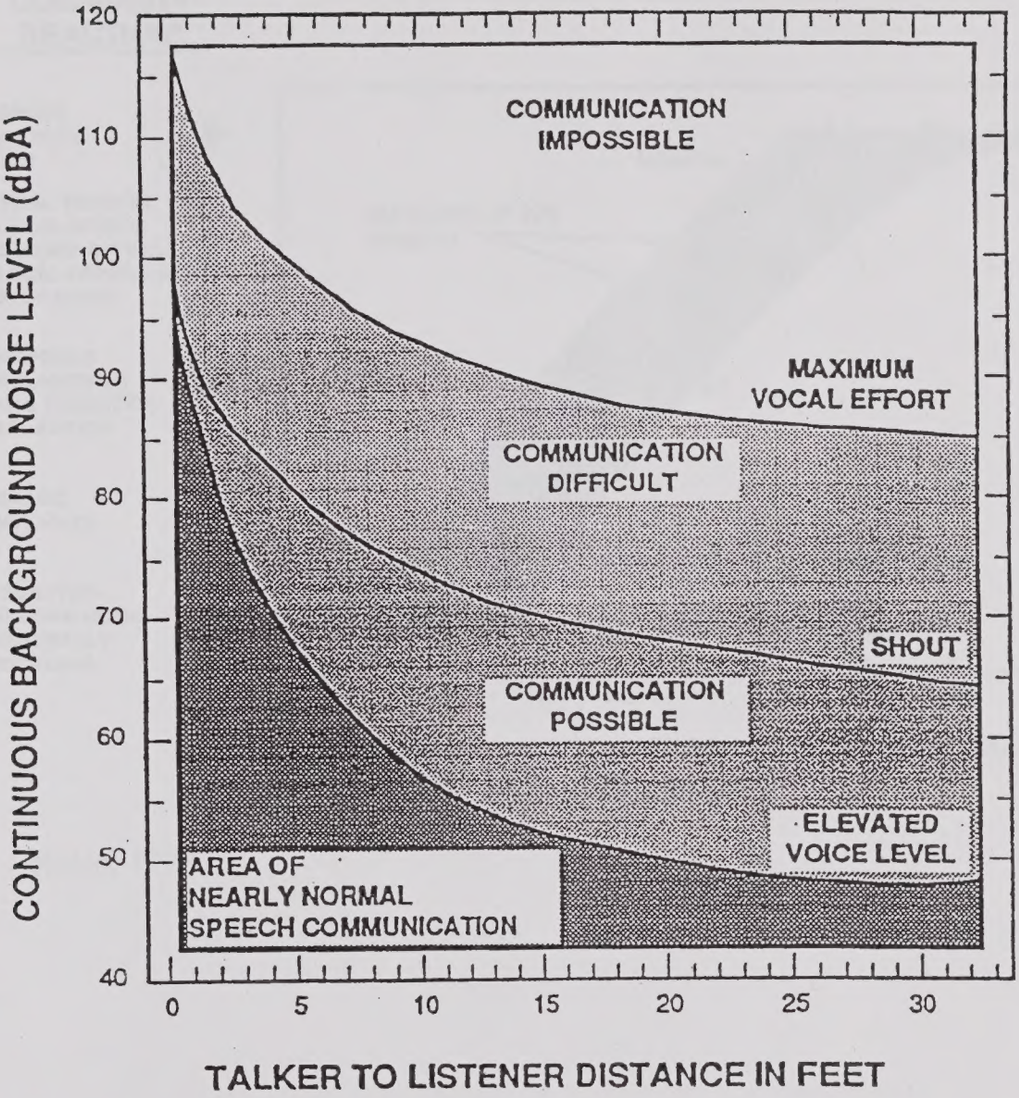


FIGURE 2.

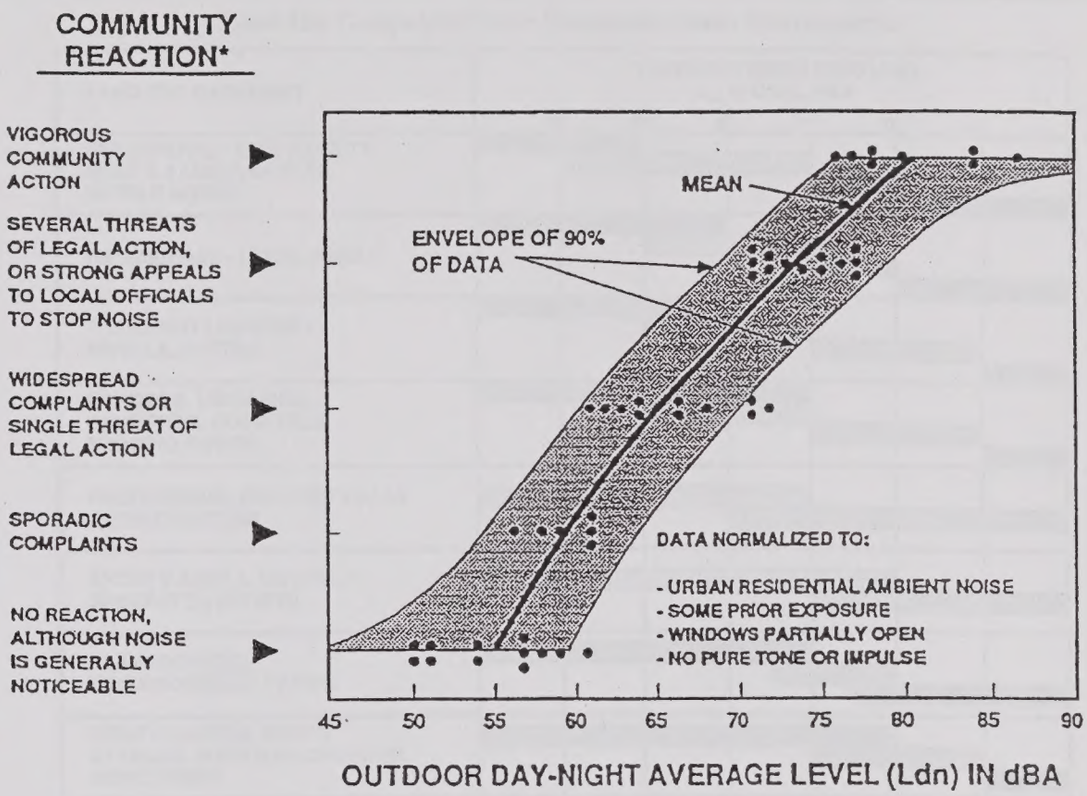
NOISE AND SPEECH INTERFERENCE



Source: Physics, 1975

FIGURE 3.

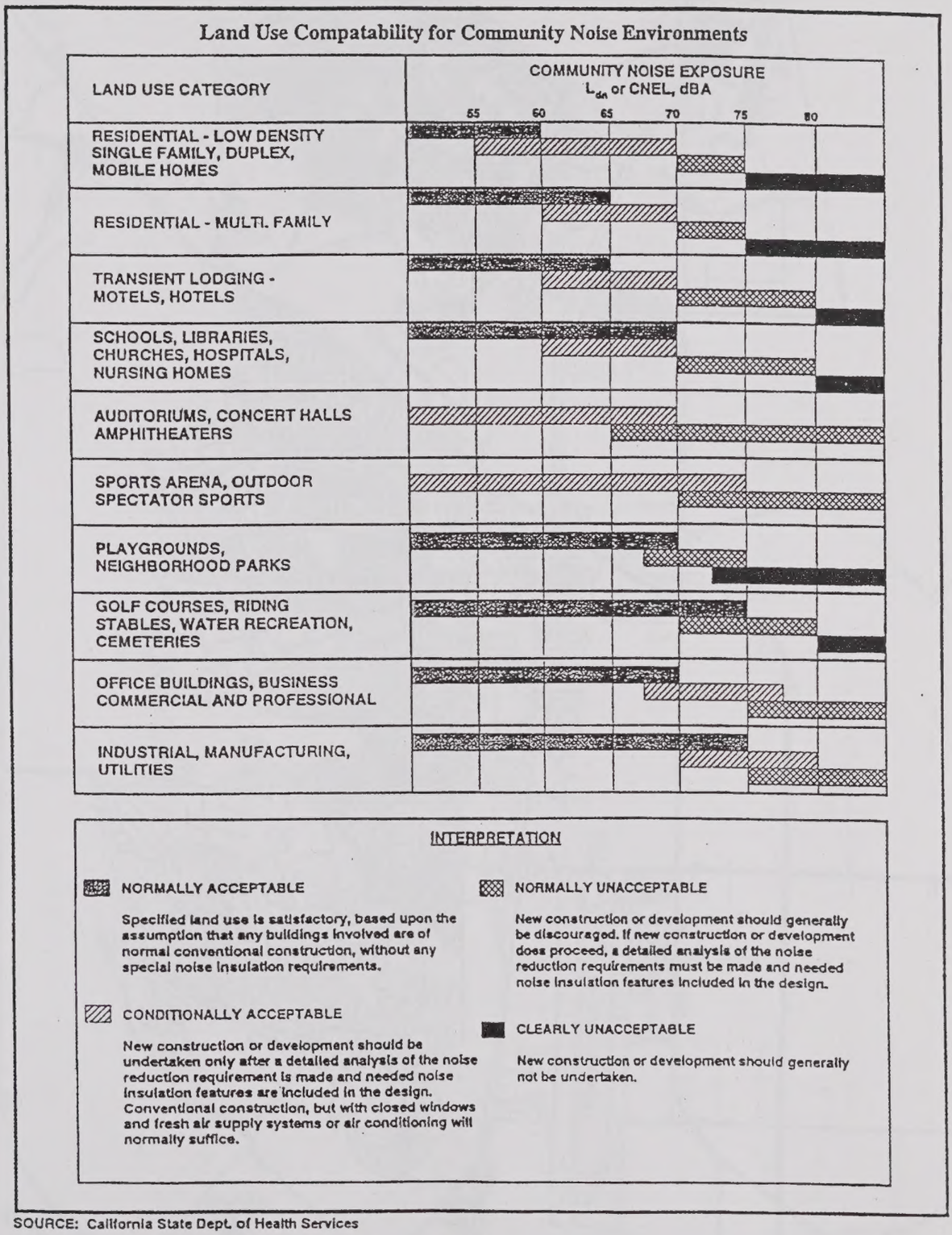
L_{dn}/CNEL VS. COMMUNITY REACTIONS



Source: Noise, 1974

FIGURE 4.

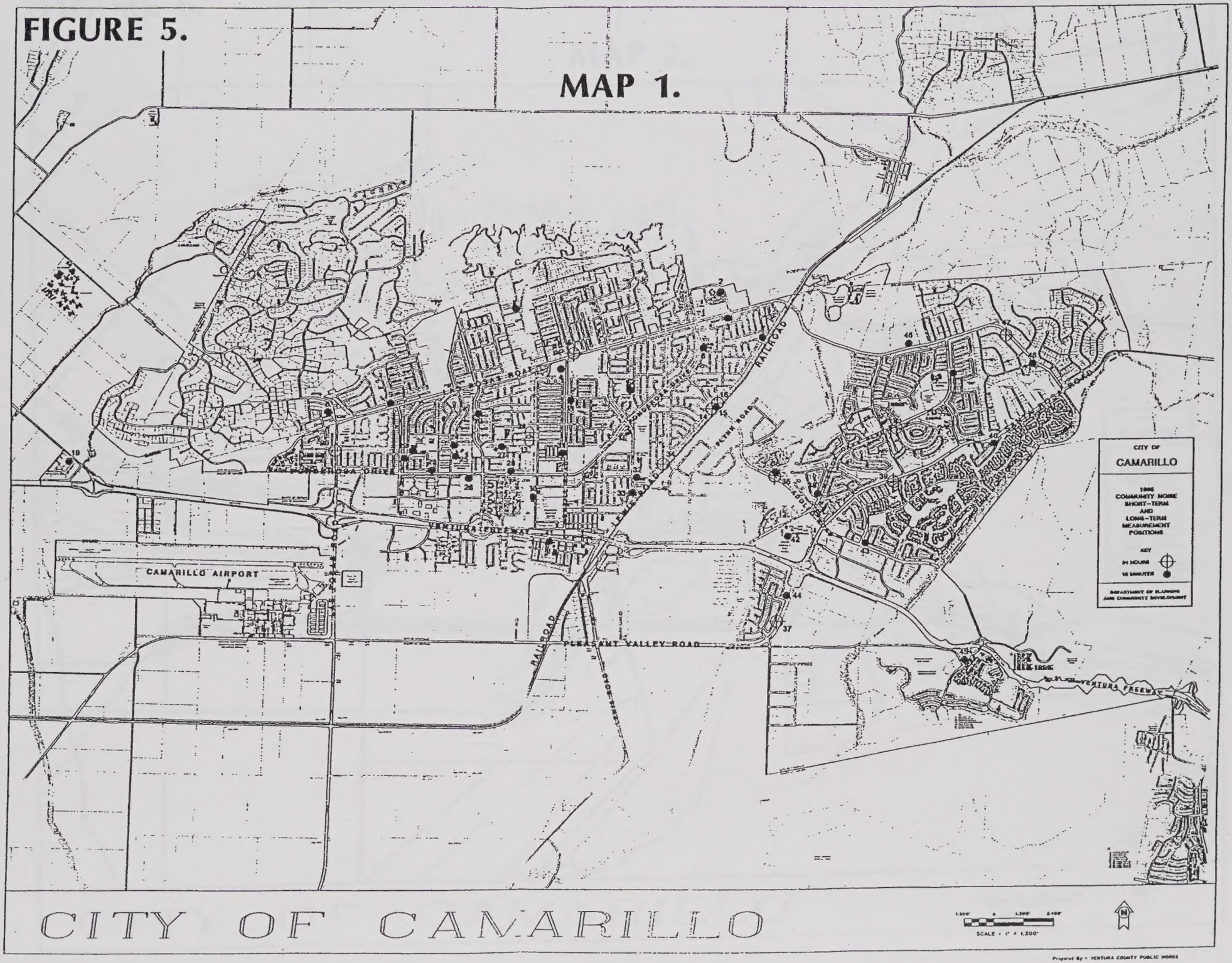
LAND USE COMPATIBILITY MATRIX



SOURCE: California State Dept. of Health Services

FIGURE 5.

MAP 1.



Prepared By: VENTURA COUNTY PUBLIC WORKS

FIGURE 6.

MAP 2.

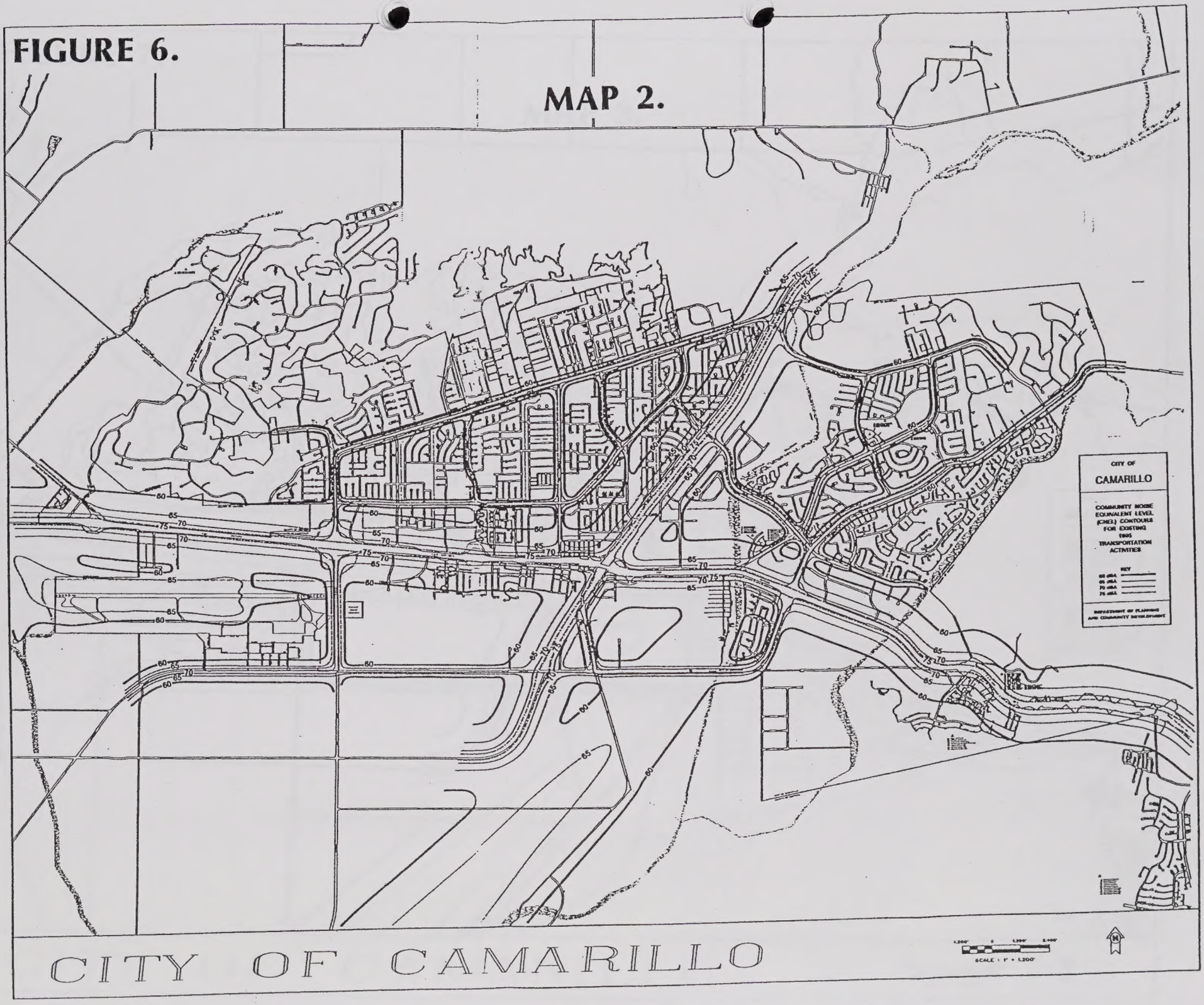


FIGURE 7.

MAP 3.

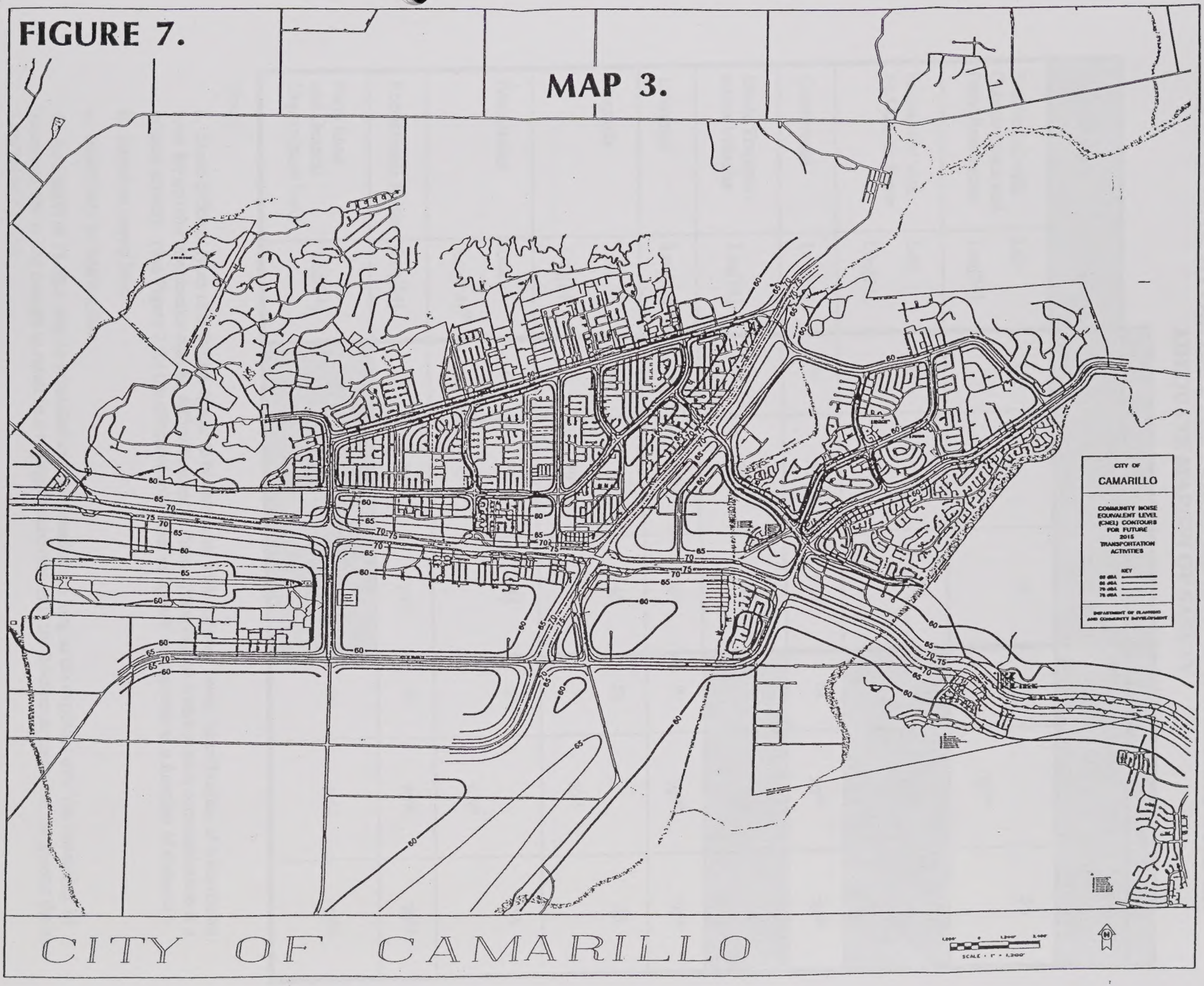


TABLE 1.

SOUND LEVELS IDENTIFIED BY THE ENVIRONMENTAL PROTECTION AGENCY AS REQUISITE TO PROTECT THE PUBLIC HEALTH AND WELFARE WITH AN ADEQUATE MARGIN OF SAFETY

		Indoor			Outdoor		
Land Use	Measure	Activity Interference	Hearing Loss Consideration	To Protect Against Both Effects[b]	Activity Interference	Hearing Loss Consideration	To Protect Against Both Effects[b]
Residential with Outside Space and Farm Residences	Ldn	45		45	55		55
	Leq[24]		70[e]			70[e]	
Residential with No Outside Space	Ldn	45		45			
	Leq[24]		70[e]				
Commercial	Leq[24]	(a)	70[e]	70[c]	(a)	70[e]	70[c]
Inside Transportation Vehicles	Leq[24]	(a)	70[e]	(a)			
Industrial	Leq[24][d]	(a)	70[e]	70[c]	(a)	70[e]	70[c]
Hospitals	Ldn	45		45	55		55
	Leq[24]		70[e]			70[e]	
Educational	Ldn	45		45	55		55
	Leq[24][d]		70[e]			70[e]	
Recreational Areas	Leq[24]	(a)	70[e]	70[c]	(a)	70[e]	70[c]
Farm Land and General Unpopulated Land	Leq[24]				(a)	70[e]	70[c]

Notes:

a. Since different types of activities appear to be associated with different levels, identification of a maximum level for activity interference may be difficult except in those circumstances where speech communication is a critical activity. (See Figure 2 for the effects of noise level on speech interference as a function of distance.)

b. Based on lowest level.

c. Based only on hearing loss.

d. An Leq[8] of 75 dBA may be identified in these situations so long as the exposure over the remaining 16 hours per day is low enough to result in a negligible contribution to the 24-hour average, i.e., no greater the an Leq[16] of 60 dBA.

e. The exposure period which results in hearing loss at the identified levels is 40 years.

Source: EPA, 1974.

TABLE 2.

FEDERAL HIGHWAY ADMINISTRATION NOISE ABATEMENT CRITERIA

Activity Category	Noise Abatement Criteria Leq[1] (dBA)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed land, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Note: [1] Indicates a one-hour Leq noise metric measured during the worst-case traffic noise hour.

Source: 23 CFR Part 772, 1982

TABLE 3. CAMARILLO NOISE MEASUREMENT LOCATIONS AND RESULTS

SHEET 1 of 2

Site Location	Date	Day	Time	Duration	Comments	A-Weighted Sound Level, dBA: Morning (m) Leq	Morning (m) Lmax	Morning (m) L10	Morning (m) L50	Morning (m) L90	Midday (m) Leq	Midday (m) Lmax	Midday (m) L10	Midday (m) L50	Midday (m) L90	Evening (m) Leq	Evening (m) Lmax	Evening (m) L10	Evening (m) L50	Evening (m) L90	24 hr. CNEL
1. Camarillo Heights School P/L	5-25-95	Thu	10:07-10:22	15 min.	Catalina 50', Anacapa 100', birds, power tool						48.5	63.5	50.5	45.5	43.0						
2. Pleasant Valley Hospital P/L	3-02-95	Thu	13:05-13:20	15 min.	Antonio 50', traffic, aircraft						53.0	65.5	55.5	51.0	46.0						
" Pleasant Valley Hospital P/L	2-28-95	Tue	13:19-13:34	15 min.	Antonio 50', traffic						51.5	60.5	55.0	49.0	47.0						
3. Las Posas/Antonio	2-28-95	Tue	8:31-8:46	15 min.	Antonio 50', traffic	69.0	77.0	72.0	67.0	56.5											
" Las Posas/Antonio	2-28-95	Tue	12:56-13:11	15 min.	Antonio 50', traffic						66.5	75.5	69.5	66.0	55.0						
" Las Posas/Antonio	3-01-95	Wed	13:26-13:41	15 min.	Antonio 50', traffic, aircraft						67.0	77.0	71.0	65.0	54.5						
" Las Posas/Antonio	3-02-95	Thu	17:02-17:17	15 min.	Antonio 50', traffic											69.0	79.5	72.0	67.5	60.0	72 (c)
4. Christian Church School P/L	3-02-95	Thu	15:35-15:50	15 min.	Amelil 300', Las Posas 750', children, aircraft						54.5	60.5	56.5	54.5	52.5						
5. 1947 Viking (>24 hrs)	3-02-95	Thu	7:00-8:00	1 hr.	Unattended during period of over 24 hours.	59.5	71.5	62.5	56.5	50.5											
" 1947 Viking (>24 hrs)	3-02-95	Thu	12:00-13:00	1 hr.	"						55.5	68.5	58.5	53.0	46.0						
" 1947 Viking (>24 hrs)	3-02-95	Thu	17:00-18:00	1 hr.	"											55.5	70.5	58.0	53.5	48.0	58.6 (m)
" 1947 Viking (>24 hrs)	3-03-95	Fri	7:00-8:00	1 hr.	"	57.5	81.0	60.0	55.0	49.5											
6. Dos Camino School P/L	3-02-95	Thu	13:36-13:51	15 min.	Ponderosa 50', Appian 50', traffic						60.0	68.5	64.0	57.5	51.0						
7. Lewis/Croydon	3-01-95	Wed	12:48-13:03	15 min.	Lewis 125', traffic						65.5	78.5	69.0	64.5	56.0						
" Lewis/Croydon	2-28-95	Tue	13:45-14:00	15 min.	Lewis 125', traffic						72.0	82.5	76.5	67.5	61.5						72 (c)
8. Crestview/Camino Esplendido	5-24-95	Wed	7:11-7:26	15 min.	Crestview 50', traffic	62.0	76.0	66.0	57.5	50.0											
" Crestview/Camino Esplendido	5-24-95	Wed	10:25-10:40	15 min.	Crestview 50', traffic, 3 big trucks						65.0	81.5	68.0	58.5	49.0						
" Crestview/Camino Esplendido	3-01-95	Wed	19:18-19:33	15 min.	Crestview 50', traffic											61.5	73.0	65.0	58.5	46.0	66 (c)
9. Las Posas/Calle La Cumbre	5-25-95	Thu	7:30-7:45	15 min.	Las Posas 50', traffic, dog	64.5	72.0	68.0	62.5	54.0											
" Las Posas/Calle La Cumbre	5-25-95	Thu	10:41-10:56	15 min.	Las Posas 50', traffic						64.0	77.0	68.0	61.5	51.0						
" Las Posas/Calle La Cumbre	3-02-95	Thu	19:29-19:44	15 min.	Las Posas 50', traffic											63.5	70.5	67.0	61.5	52.0	72 (c)
10. Carmen/Edgemont	5-25-95	Thu	8:38-8:53	15 min.	Carmen 50', traffic	62.5	75.0	66.5	58.5	50.0											
" Carmen/Edgemont	5-25-95	Thu	11:40-11:55	15 min.	Carmen 50', traffic						61.5	71.0	66.5	57.0	46.5						
" Carmen/Edgemont	3-02-95	Thu	20:03-20:18	15 min.	Carmen 50', traffic											57.5	67.5	63.0	51.0	42.5	64 (c)
11. Amelil/Rocklyn	2-28-95	Tue	15:43-15:58	15 min.	Amelil 50', traffic						65.5	76.5	68.5	64.5	55.5						69 (c)
12. Los Nogales School P/L	3-01-95	Wed	14:12-14:27	15 min.	Kendall 50', traffic, aircraft						57.5	72.0	60.0	53.0	48.5						
13. 1065 N. Rowland (>24 hrs)	3-07-95	Tue	7:00-8:00	1 hr.	Unattended during period of over 24 hours.	50.0	69.5	50.5	45.5	43.5											
" 1065 N. Rowland (>24 hrs)	3-07-95	Tue	14:00-15:00	1 hr.	"						61.5	81.5	63.5	59.5	56.5						
" 1065 N. Rowland (>24 hrs)	3-07-95	Tue	16:00-17:00	1 hr.	"											60.5	76.5	62.5	58.0	56.0	60.8 (m)
" 1065 N. Rowland (>24 hrs)	3-08-95	Wed	7:00-8:00	1 hr.	"	60.5	75.0	62.0	59.0	57.0											
14. 1322 N. Garcia (24 hrs)	2-22-95	Wed	7:00-8:00	1 hr.	Unattended during period of over 24 hours.	65.5	92.0	63.0	59.0	55.5											
" 1322 N. Garcia (24 hrs)	2-22-95	Wed	10:00-11:00	1 hr.	"						65.5	94.5	63.0	56.5	52.0						
" 1322 N. Garcia (24 hrs)	2-22-95	Wed	16:00-17:00	1 hr.	"											63.5	86.5	63.5	59.0	56.0	69.2 (m)
15. Adolfo/Garcia	3-02-95	Thu	12:39-12:54	15 min.	Lewis 60', Garcia 65', traffic						73.5	91.5	79.0	69.5	62.0						
" Adolfo/Garcia	2-28-95	Tue	18:23-18:38	15 min.	Lewis 60', Garcia 65', traffic											73.0	86.0	76.5	69.0	61.5	72 (c)
16. 1422 Garcia-1st Story	3-01-95	Wed	17:00-18:00	1 hr.	Unattended during several hours.											65.0	91.5	62.5	57.5	54.0	
" 1422 Garcia-2nd Story	3-01-95	Wed	17:00-18:00	1 hr.	"											70.5	96.5	69.0	64.0	60.5	
" 1422 Garcia-1st Story (>24 hrs)	3-07-95	Tue	7:00-8:00	1 hr.	Unattended during period of over 24 hours.	67.0	94.5	65.5	59.5	56.0											
" 1422 Garcia-1st Story (>24 hrs)	3-07-95	Tue	10:00-11:00	1 hr.	"						67.0	97.0	65.5	57.0	52.5						
" 1422 Garcia-1st Story (>24 hrs)	3-07-95	Tue	16:00-17:00	1 hr.	"											65.0	89.0	66.0	59.5	56.5	70.7 (m)
" 1422 Garcia-1st Story (>24 hrs)	3-08-95	Wed	7:00-8:00	1 hr.	"	63.0	85.5	64.5	58.0	54.5											
17. 5305 Hollyridge (24 hrs)	2-23-95	Thu	8:00-9:00	1 hr.	Unattended during period of over 24 hours.	55.5	71.5	59.5	51.0	43.5											
" 5305 Hollyridge (24 hrs)	2-23-95	Thu	13:00-14:00	1 hr.	"						56.5	72.5	60.5	53.0	43.5						
" 5305 Hollyridge (24 hrs)	2-23-95	Thu	18:00-19:00	1 hr.	"											61.5	74.5	62.5	57.0	49.5	62.9 (m)
" 5305 Hollyridge	2-24-95	Fri	8:00-9:00	1 hr.	Unattended during several hours.	56.0	73.0	60.5	51.5	43.0											
" 5305 Hollyridge	2-25-95	Sat	8:00-9:00	1 hr.	"	39.5	53.0	39.5	39.5	39.5											
18. Mission Oaks/Fieldcrest	3-02-95	Thu	8:48-9:03	15 min.	Mission Oaks 50', traffic	55.0	64.0	56.5	54.0	51.0											
" Mission Oaks/Fieldcrest	5-25-95	Thu	14:27-14:42	15 min.	Mission Oaks 50', traffic, loud military jet						77.5	94.5	67.5	54.0	43.0						
" Mission Oaks/Fieldcrest	5-25-95	Thu	17:46-18:01	15 min.	Mission Oaks 50', traffic, aircraft											60.0	80.5	63.5	57.0	51.0	63 (c)
19. Central/Paseo de Petalos	3-01-95	Wed	20:24-20:39	15 min.	Central 50', traffic											59.5	73.0	64.5	47.5	39.5	
20. 884 Barton (>24 hrs)	3-07-95	Tue	7:00-8:00	1 hr.	Unattended during period of over 24 hours.	61.5	73.0	64.5	60.5	54.0											
" 884 Barton (>24 hrs)	3-07-95	Tue	13:00-14:00	1 hr.	"						59.0	72.5	62.0	57.5	51.0						
" 884 Barton (>24 hrs)	3-07-95	Tue	17:00-18:00	1 hr.	"											61.0	76.0	64.0	60.5	53.5	62.2 (m)
" 884 Barton (>24 hrs)	3-08-95	Wed	7:00-8:00	1 hr.	"	61.0	72.5	64.0	60.0	53.0											
21. Rosewood/Aileen	5-24-95	Wed	7:47-8:02	15 min.	Rosewood 50', traffic, children	56.5	68.5	60.5	54.0	47.0											
" Rosewood/Aileen	5-24-95	Wed	10:57-11:12	15 min.	Rosewood 50', traffic, aircraft, power mower						56.5	69.5	61.0	52.5	51.0						
" Rosewood/Aileen	3-07-95	Tue	19:37-19:52	15 min.	Rosewood 50', traffic											56.5	70.5	60.0	50.0	41.0	
22. Valle Lindo School P/L	3-01-95	Wed	15:18-15:33	15 min.	Traffic, aircraft						58.5	71.5	60.5	52.5	48.5						
23. Ponderosa/Valle Lindo	5-25-95	Thu	8:02-8:17	15 min.	Ponderosa 50', traffic	62.0	72.0	66.5	57.5	50.5											
" Ponderosa/Valle Lindo	5-25-95	Thu	11:11-11:26	15 min.	Ponderosa 50', traffic						61.0	72.5	66.0	55.5	47.5						
" Ponderosa/Valle Lindo	2-28-95	Tue	19:45-20:00	15 min.	Ponderosa 50', traffic											60.0	74.0	64.5	54.0	42.0	68 (c)
24. Red Oak/Lantana	5-24-95	Wed	8:21-8:36	15 min.	Lantana 50', traffic, children	58.0	74.0	61.0	53.5	45.0											
" Red Oak/Lantana	5-24-95	Wed	11:24-11:39	15 min.	Lantana 50', traffic, gardeners						55.0	68.0	58.5	51.5	45.0						
" Red Oak/Lantana	3-01-95	Wed	19:54-20:09	15 min.	Lantana 50', traffic											48.0	59.5	53.5	39.0	36.0	
25. Monte Vista School P/L	2-28-95	Tue	15:09-15:24	15 min.	Traffic						57.5	68.5	61.5	54.5	50.5						
26. City Hall P/L	3-02-95	Thu	14:59-15:14	15 min.	50' south of fence, Ponderosa traffic						55.0	64.5	57.0	54.0	51.5						
" City Hall P/L	2-28-95	Tue	20:12-20:27	15 min.	50' south of fence, Ponderosa traffic											53.5	66.0	56.0	51.5	46.5	

Notes: P/L is Parking Lot. (m) is site measured data. (c) is 50-foot from road centerline calculated from traffic data. (24 hrs) data is hourly worst-case data from detailed data given elsewhere. Distances are to edge of traveled way of streets.

TABLE 3. CAMARILLO NOISE MEASUREMENT LOCATIONS AND RESULTS

SHEET 2 of 2

Site	Location	Date	Day	Time	Duration	Comments	A-Weighted Sound Level, dBA																						24 hr. CNEL
							Morning (m)					Midday (m)					Evening (m)												
							Leq	Lmax	L10	L50	L90	Leq	Lmax	L10	L50	L90	Leq	Lmax	L10	L50	L90	Leq	Lmax	L10	L50	L90		
27.	Community Center	3-02-95	Thu	16:01-16:16	15 min.	@ Hayden end, birds, aircraft											52.0	58.5	54.0	51.0	50.0							
28.	Ponderosa/Brentley	5-24-95	Wed	8:54-9:09	15 min.	Ponderosa 50', traffic	65.5	79.0	69.0	62.5	55.5																	
"	Ponderosa/Brentley	5-24-95	Wed	12:27-12:42	15 min.	Ponderosa 50', traffic						64.0	75.0	67.5	62.0	55.5												
"	Ponderosa/Brentley	2-28-95	Tue	16:09-16:24	15 min.	Ponderosa 50', traffic											63.5	72.5	66.0	62.0	56.5	68 (c)						
29.	1135 Rowland (>24 hrs)	2-22-95	Wed	7:00-8:00	1 hr.	Unattended during period of over 24 hours.	50.5	65.5	49.0	42.5	41.0																	
"	1135 Rowland (>24 hrs)	2-22-95	Wed	14:00-15:00	1 hr.	"						52.0	79.5	53.5	46.0	41.5												
"	1135 Rowland (>24 hrs)	2-22-95	Wed	16:00-17:00	1 hr.	"											50.5	61.5	51.0	45.5	41.0	53.3 (m)						
"	1135 Rowland (>24 hrs)	2-23-95	Thu	7:00-8:00	1 hr.	"	50.5	60.0	50.5	46.5	42.0																	
30.	Mobil/Kino	5-25-95	Thu	9:08-9:23	15 min.	Mobil 50', traffic	57.5	67.0	61.5	53.5	50.0																	
"	Mobil/Kino	5-25-95	Thu	12:42-12:57	15 min.	Mobil 50', traffic						61.0	79.0	63.5	58.0	53.0												
"	Mobil/Kino	3-01-95	Wed	16:17-16:32	15 min.	Mobil 50', traffic											63.0	77.0	65.0	60.0	55.5							
31.	Ameill/Chandler	5-24-95	Wed	9:24-9:39	15 min.	Ameill 50', traffic, aircraft	61.5	71.0	66.0	58.0	50.0																	
"	Ameill/Chandler	3-01-95	Wed	15:51-16:06	15 min.	Ameill 50', traffic						63.0	69.0	66.5	61.5	55.5												
"	Ameill/Chandler	5-24-95	Wed	16:59-17:14	15 min.	Ameill 50', traffic, aircraft											62.5	74.0	66.5	61.0	53.0							
32.	Temple/Hartnell	3-02-95	Thu	14:23-14:38	15 min.	Temple 50', traffic, train						59.0	68.5	62.5	57.0	52.0						62 (c)						
33.	Temple/Lewis	2-28-95	Tue	14:31-14:46	15 min.	Temple 50', traffic						57.5	64.5	60.0	56.0	54.5						62 (c)						
34.	788 Sharon Drive (>24 hrs)	3-02-95	Thu	7:00-8:00	1 hr.	Unattended during period of over 24 hours.	61.5	82.0	64.5	58.0	49.5																	
"	788 Sharon Drive (>24 hrs)	3-02-95	Thu	12:00-13:00	1 hr.	"						64.0	87.5	64.5	57.5	50.0												
"	788 Sharon Drive (>24 hrs)	3-02-95	Thu	17:00-18:00	1 hr.	"											63.5	82.5	66.0	57.5	50.5	66.1 (m)						
"	788 Sharon Drive (>24 hrs)	3-03-95	Fri	8:00-9:00	1 hr.	"	65.0	84.5	65.0	58.5	52.5																	
35.	9 Calle Fronte Ave.(side yard)	3-01-95	Wed	12:17-12:32	15 min.	Adolfo traffic						58.5	69.0	63.0	55.0	44.5												
"	9 Calle Fronte Ave.(side yard)	2-23-95	Thu	7:00-8:00	1 hr.	Unattended during several hours.	58.5	73.5	62.5	56.0	47.0																	
"	9 Calle Fronte Ave.(side yard)	2-24-95	Fri	8:00-9:00	1 hr.	"	58.5	70.0	62.5	56.0	49.0																	
"	9 Calle Fronte Ave.(side yard)	2-25-95	Sat	8:00-9:00	1 hr.	"	35.0	52.5	35.0	34.5	34.5											72 (c)						
"	9 Calle Fronte Ave.(side) (>24 hrs)	3-02-95	Thu	7:00-8:00	1 hr.	Unattended during period of over 24 hours.	59.0	71.0	62.5	55.5	47.5																	
"	9 Calle Fronte Ave.(side) (>24 hrs)	3-02-95	Thu	12:00-13:00	1 hr.	"						68.0	97.0	61.5	51.5	42.5												
"	9 Calle Fronte Ave.(side) (>24 hrs)	3-02-95	Thu	17:00-18:00	1 hr.	"											56.5	71.5	60.0	53.0	47.5	59.7 (m)						
"	9 Calle Fronte Ave.(side) (>24 hrs)	3-03-95	Fri	8:00-9:00	1 hr.	"	58.5	70.5	62.5	55.5	47.0																	
36.	9 Calle Fronte Ave.(front mailbox)	2-28-95	Tue	12:10-12:25	15 min.	Adolfo traffic						53.0	63.0	55.5	49.5	40.0												
37.	336 Bent Twig Ave. (>24 hrs)	3-02-95	Thu	7:00-8:00	1 hr.	Unattended during period of over 24 hours.	63.0	74.5	65.5	61.0	54.0																	
"	336 Bent Twig Ave. (>24 hrs)	3-02-95	Thu	13:00-14:00	1 hr.	"						67.0	93.0	64.5	57.5	49.0												
"	336 Bent Twig Ave. (>24 hrs)	3-02-95	Thu	16:00-17:00	1 hr.	"											60.5	73.0	63.0	58.0	49.5	62.8 (m)						
"	336 Bent Twig Ave. (>24 hrs)	3-03-95	Fri	7:00-8:00	1 hr.	"	62.5	79.0	65.0	61.0	55.5																	
38.	Mission Oaks/Hillcrest	3-02-95	Thu	9:32-9:47	15 min.	Mission Oaks 50', traffic	62.0	75.0	66.5	60.0	54.5																	
"	Mission Oaks/Hillcrest	5-24-95	Wed	13:39-13:54	15 min.	Mission Oaks 50', traffic						64.0	75.0	68.5	60.5	48.5												
"	Mission Oaks/Hillcrest	5-24-95	Wed	18:06-18:21	15 min.	Mission Oaks 50', traffic											64.5	74.5	68.5	63.0	52.5	70 (c)						
39.	5166 Village #5	2-23-95	Thu	7:00-8:00	1 hr.	Unattended during several hours.	55.5	67.0	58.5	54.0	47.5																	
"	5166 Village #5	2-24-95	Fri	7:00-8:00	1 hr.	"	55.5	69.5	58.5	53.5	47.5																	
"	5166 Village #5	2-25-95	Sat	8:00-9:00	1 hr.	"	32.0	50.0	32.0	32.0	31.5																	
"	5166 Village #5 (>24 hrs)	3-07-95	Tue	7:00-8:00	1 hr.	Unattended during period of over 24 hours.	57.0	80.5	59.5	55.5	51.0																	
"	5166 Village #5 (>24 hrs)	3-07-95	Tue	12:00-13:00	1 hr.	"						57.0	78.0	59.0	53.5	46.5												
"	5166 Village #5 (>24 hrs)	3-07-95	Tue	17:00-18:00	1 hr.	"											56.5	69.0	59.5	55.0	47.5	57.7 (m)						
"	5166 Village #5 (>24 hrs)	3-08-95	Wed	7:00-8:00	1 hr.	"	56.5	72.0	59.0	55.0	49.5																	
40.	Santa Rosa/Adobe Way	2-28-95	Tue	8:57-9:12	15 min.	Santa Rosa 50', traffic	64.0	76.0	66.0	61.0	56.5																	
"	Santa Rosa/Adobe Way	5-24-95	Wed	14:11-14:26	15 min.	Santa Rosa 50', traffic, aircraft						64.5	75.5	69.0	59.5	47.5												
"	Santa Rosa/Adobe Way	3-01-95	Wed	17:25-17:40	15 min.	Santa Rosa 50', traffic											66.5	74.0	71.0	63.0	51.0	69 (c)						
41.	Pleasant Valley School P/L	3-01-95	Wed	14:40-14:55	15 min.	Traffic, children						60.5	68.5	63.0	59.0	56.5												
42.	Camarillo High School P/L	3-02-95	Thu	11:58-12:13	15 min.	Distant freeway traffic, aircraft						56.0	63.5	57.0	54.0	51.5												
43.	Adolfo/Los Pueblos	3-01-95	Wed	9:23-9:38	15 min.	Adolfo 50', traffic, distant construction	63.5	80.0	68.0	61.5	57.0																	
"	Adolfo/Los Pueblos	5-25-95	Thu	13:54-14:09	15 min.	Adolfo 50', traffic, aircraft						61.5	72.0	66.5	58.0	53.5												
"	Adolfo/Los Pueblos	3-02-95	Thu	17:40-17:55	15 min.	Adolfo 50', traffic											65.0	73.0	67.5	64.0	60.5	69 (c)						
44.	Pleasant Valley/Ridge View	2-28-95	Tue	9:41-9:56	15 min.	Pleasant Valley 50', traffic	64.0	75.5	65.5	61.0	56.5																	
"	Pleasant Valley/Ridge View	3-01-95	Wed	11:46-12:01	15 min.	Pleasant Valley 50', traffic, aircraft						65.5	81.5	74.0	64.5	57.0												
"	Pleasant Valley/Ridge View	5-24-95	Wed	18:28-18:43	15 min.	Pleasant Valley 50', traffic, aircraft											66.5	79.0	69.5	64.5	58.5	70 (c)						
45.	Camarillo Springs/Ridge View	3-02-95	Thu	20:40-20:55	15 min.	Cam.Springs 50', Ridge V. 50', freeway traffic											59.0	63.0	61.5	58.5	55.5							
46.	Upland/Worth Way	3-01-95	Wed	8:40-8:55	15 min.	Upland 50', Worth 50', traffic	64.0	71.5	67.5	60.0	47.5																	
"	Upland/Worth Way	5-24-95	Wed	14:41-14:56	15 min.	Upland 50', Worth 50', traffic, aircraft						62.5	76.5	66.0	60.0	49.5												
"	Upland/Worth Way	5-24-95	Wed	17:26-17:41	15 min.	Upland 50', Worth 50', traffic, aircraft											64.0	75.0	67.5	62.5	52.0	66 (c)						
47.	2158 Cervato Dr.	2-23-95	Thu	7:00-8:00	1 hr.	Unattended during several hours.	53.5	73.5	56.0	47.0	39.5																	
"	2158 Cervato Dr.	2-24-95	Fri	8:00-9:00	1 hr.	"	52.0	73.0	55.0	47.5	38.5																	
"	2158 Cervato Dr.	2-25-95	Sat	8:00-9:00	1 hr.	"	34.0	49.5	34.5	34.0	33.5																	
"	2158 Cervato Dr. (>24 hrs)	3-07-95	Tue	7:00-8:00	1 hr.	Unattended during period of over 24 hours.	54.0	70.5	57.5	49.5	44.5																	
"	2158 Cervato Dr. (>24 hrs)	3-07-95	Tue	12:00-13:00	1 hr.	"						54.0	73.5	56.0	49.5	46.0												
"	2158 Cervato Dr. (>24 hrs)	3-07-95	Tue	17:00-18:00	1 hr.	"											53.0	74.0	56.5	49.5	42.5	54.6 (m)						
"	2158 Cervato Dr. (>24 hrs)	3-08-95	Wed	7:00-8:00	1 hr.	"	53.5	65.0	57.5	50.5	45.0																	
48.	Upland @ San Onofre extension	2-28-95	Tue	17:16-17:31	15 min.	Upland 50', traffic											65.0	76.0	69.5	60.5	46.0	60 (c)						

Notes: P/L is Parking Lot. (m) is site measured data. (c) is 50-foot from road centerline calculated from traffic data. (24 hrs) data is hourly worst-case data from detailed data given elsewhere. Distances are to edge of traveled way of streets.

TABLE 4. CURRENT (1995) STREETS AND TRAFFIC DATA - CITY OF CAMARILLO

STREET NAME 1 of 2 from	to	# Traffic LANES	RIGHT OF WAY (ft)	EDGE to EDGE (ft)	MEDIAN WIDTH (ft)	SPEED LIMIT	Peak Hr. AUTOS	Peak Hr. Med.Truck	Peak Hr. Hvy.Truck	TOTAL ADT	ADT % AUTOS	ADT % Med.Truck	ADT % Hvy.Truck	+/- % Grade
1. Las Posas Road														
a. Pleasant Valley	Ventura Blvd	4	100	64	0	55	9	9	9	22,000	97	2	1	
b. Ventura Blvd	Daily	5	84	76	12	40	"	"	"	34,000	"	"	"	
c. Daily	Ponderosa	"	"	"	"	"	"	"	"	23,000	"	"	"	
d. Ponderosa	Crestview	4	"	66	14	"	"	"	"	18,000	"	"	"	
e. Crestview	Carmen	"	82	62	10	45	"	"	"	16,000	"	"	"	
f. Carmen	Arneill	"	80	66	"	"	"	"	"	"	"	"	"	
g. Arneill	Temple	"	84	68	"	40	"	"	"	18,000	"	"	"	
h. Temple	Lewis	"	"	"	"	45	"	"	"	"	"	"	"	
2. Ponderosa Drive														
a. Earl Joseph	Bradford	2	42	24	0	40	9	9	9	3,000	97	2	1	
b. Bradford	Las Posas	1 WB/2 EB	84	64	24.5	"	"	"	"	"	"	"	"	
c. Las Posas	Rosewood	4	"	62	14	"	"	"	"	10,000	"	"	"	
d. Rosewood	Lantana	"	"	64	12	"	"	"	"	11,000	"	"	"	
e. Lantana	Carmen	"	"	"	"	"	"	"	"	"	"	"	"	
f. Carmen	Mobil	"	"	"	"	35	"	"	"	13,000	"	"	"	
g. Mobil	Arneill	"	"	"	"	"	"	"	"	11,000	"	"	"	
h. Arneill	Fulton	"	"	"	"	40	"	"	"	12,000	"	"	"	
i. Fulton	Temple	"	"	"	"	"	"	"	"	8,000	"	"	"	
j. Temple	Las Posas	"	"	"	"	35	"	"	"	6,000	"	"	"	
3. Daily Drive														
a. Las Posas	1,400 ft. West of Rosewood	2	60	48	12	30	9	9	9	12,000	95	3	2	
b. West of Rosewood	Carmen	"	"	"	"	40	"	"	"	11,000	"	"	"	
c. Carmen	Brently	"	"	"	"	35	"	"	"	14,000	"	"	"	
d. Brently	Mobil	"	"	"	"	40	"	"	"	13,000	"	"	"	
e. Mobil	Arneill	"	"	36	0	"	"	"	"	9,000	"	"	"	
f. Arneill	Fulton	"	"	"	"	30	"	"	"	8,000	"	"	"	
g. Fulton	Nellora	"	"	"	"	"	"	"	"	14,000	"	"	"	
h. Nellora	Lewis	"	"	"	"	"	"	"	"	11,000	"	"	"	
4. Crestview														
a. Las Posas	Avacado	2	60	60	12	40	9	9	9	7,000	98	2	0	
5. Carmen Drive														
a. Las Posas	Coe	4	84	52	12	40	9	9	9	7,000	99	1	0	
b. Coe	Ponderosa	"	"	"	"	"	"	"	"	9,000	"	"	"	
c. Ponderosa	Paseo Camarillo	"	"	"	"	35	"	"	"	11,000	"	"	"	
d. Paseo Camarillo	Ventura Blvd	"	"	40	"	"	"	"	"	13,000	"	"	"	
6. Arneill Road														
a. Las Posas	Dunnigan	4	89.5	52	12	40	9	9	9	15,000	97	2	1	
b. Dunnigan	Ponderosa	"	"	"	"	"	"	"	"	17,000	"	"	"	
c. Ponderosa	Pickwick	"	85	"	"	35	"	"	"	20,000	"	"	"	
d. Pickwick	Ventura Blvd	"	"	"	"	"	"	"	"	"	"	"	"	
7. Temple Avenue														
a. Las Posas	Ponderosa	4	84	64	12	40	9	9	9	7,000	99	1	0	
b. Ponderosa	Lewis	"	"	"	12	35	"	"	"	5,000	"	"	"	
8. Adolfo Road														
a. Ponderosa	Lewis	4	84	60	0	35	9	9	9	10,000	91	5	4	
b. Lewis	Flynn	"	102	"	12	40	"	"	"	15,000	"	"	"	
c. Flynn	Avenida Acaso	"	"	"	"	45	"	"	"	17,000	"	"	"	
d. Avenida Acaso	Mission Oaks	"	"	64	14	"	"	"	"	14,000	"	"	"	
e. Mission Oaks	Santa Rosa	"	"	"	"	35	"	"	"	"	"	"	"	
f. Santa Rosa	Los Pueblos	"	"	"	"	40	"	"	"	7,000	"	"	"	
g. Los Pueblos	Conejo Creek	"	"	"	"	45	"	"	"	1,000	"	"	"	

TABLE 4. CURRENT (1995) STREETS AND TRAFFIC DATA - CITY OF CAMARILLO

STREET NAME 2 of 2 from	to	# Traffic LANES	RIGHT OF WAY (ft)	EDGE to EDGE (ft)	MEDIAN WIDTH (ft)	SPEED LIMIT	Peak Hr. AUTOS	Peak Hr. Med.Truck	Peak Hr. Hvy.Trucks	TOTAL ADT	ADT % Autos	ADT % Med.Truck	ADT % Hvy.Truck	+/- % Grade
9. Upland Road														
a. Lewis	Woodcreek	4	94	52	12	45	9	9	9	11,000	99	1	0	3.5
b. Woodcreek	Mission Oaks	2	"	32	0	"	"	"	"	6,000	"	"	"	
c. Mission Oaks	"bend"	"	"	"	"	"	"	"	"	5,000	"	"	"	
d. "bend"	Paseo Noche	4	"	62	12	"	"	"	"	"	"	"	"	-5.0
e. Paseo Noche	Santa Rosa	2	60	26	0	40	"	"	"	3,000	"	"	"	-3.5
10. Mission Oaks Boulevard														
a. Dawson	1/2 way to Flynn	2	50	37	0	45	9	9	9	9,000	99	1	0	
b. 1/2 way to Flynn	Flynn			42	"	"	"	"	"	"	"	"	"	
c. Flynn	Callegues Creek	"	"	30	"	"	"	"	"	4,000	"	"	"	
d. Callegues Creek	Adolfo	"	"	"	"	"	"	"	"	8,000	"	"	"	
e. Adolfo	Creekside	4	94	78	14	"	"	"	"	11,000	"	"	"	5.0
f. Creekside	Woodcreek	"	"	"	"	"	"	"	"	9,000	"	"	"	-4.4
g. Woodcreek	Oak Canyon	"	"	"	"	"	"	"	"	5,000	"	"	"	-4.0
h. Oak Canyon	Fieldcrest	"	"	"	"	40	"	"	"	3,000	"	"	"	
i. Fieldcrest	Upland	"	"	"	"	"	"	"	"	"	"	"	"	4.0
11. Pleasant Valley Road														
a. Wood	Las Posas	2	n/a	42	0	50	9	9	9	15,000	82	9	9	
b. Las Posas	E. Fifth	"	"	25	"	55	"	"	"	4,000	"	"	"	
c. E. Fifth	Lewis	"	89	64	"	"	"	"	"	13,000	"	"	"	
d. Lewis	Pancho	"	120	40	"	"	"	"	"	11,000	91	5	4	
e. Pancho	101 Freeway	"	"	46	11	45	"	"	"	12,000	"	"	"	
12. Santa Rosa Road														
a. 101 Freeway	Verdugo	6	102	84	12	40	9	9	9	36,000	95	3	2	
b. Verdugo	Adolfo	"	"	"	"	"	"	"	"	30,000	"	"	"	
c. Adolfo	Woodcreek	4	84	56	14	45	"	"	"	18,000	"	"	"	
d. Woodcreek	Oak Canyon	"	"	56	"	"	"	"	"	16,000	"	"	"	
e. Oak Canyon	"City Limit"	2	"	47	"	"	"	"	"	13,000	"	"	"	
13. Woodcreek Road														
a. Santa Rosa	Mission Oaks	4	68	66	14	40	9	9	9	6,000	99	1	0	10.0
b. Mission Oaks	Fieldcrest	2	"	54	"	35	"	"	"	"	"	"	"	
c. Fieldcrest	Upland	"	"	"	"	35	"	"	"	5,000	"	"	"	
14. Flynn Road														
a. Mission Oaks	Maya Linda	2	68	40	0	45	9	9	9	6,000	91	5	4	
b. Maya Linda	Adolfo	4	"	52	"	"	"	"	"	"	"	"	"	
c. Adolfo	"terminus"	"	"	"	"	40	"	"	"	4,000	"	"	"	
15. Lewis Road														
a. Somis	Upland	2	100	52	0	50	9	9	9	15,000	91	5	4	
b. Upland	Adolfo	"	"	82	"	"	"	"	"	12,000	"	"	"	
c. Adolfo	Temple	"	"	"	"	"	"	"	"	13,000	"	"	"	
d. Temple	Barry	"	"	48	"	40	"	"	"	16,000	"	"	"	
e. Barry	Ventura Blvd	"	"	"	"	"	"	"	"	17,000	"	"	"	
f. Ventura Blvd	Pleasant Valley	"	"	52	"	"	"	"	"	15,000	"	"	"	
16. West Loop Drive														
a. Las Posas	"City Limit"	2	45	36	0	25	9	9	9	2,500	100	0	0	
17. 101 (Ventura Freeway)														
a. Conejo Scales	"base of grade"	7	160		42	55	9	9	9	102,000	94.1	3.7	2.2	-7.0
b. "base of grade"	Pleasant Valley	6	"		58	"	"	"	"	"	"	"	"	
c. Pleasant Valley	Dawson/Lewis	"	"		50	"	"	"	"	110,000	94.3	"	2.0	
d. Dawson/Lewis	Carmen	"	"		42	"	"	"	"	100,000	93.4	4.2	2.4	
e. Carmen	Las Posas	"	"		50	"	"	"	"	114,000	"	"	"	
f. Las Posas	Central (LOS=C)	"	"		42	"	"	"	"	117,000	94.5	3.6	1.9	

TABLE 5. FUTURE (2015) STREETS AND TRAFFIC DATA - CITY OF CAMARILLO

STREET NAME 1 of 2 from	to	# Traffic LANES	RIGHT OF WAY (ft)	CURB to CURB (ft)	MEDIAN WIDTH (ft)	SPEED LIMIT	Peak Hr. AUTOS	Peak Hr. Med.Truck	Peak Hr. Hvy.Truck	TOTAL ADT	ADT % AUTOS	ADT % Med.Truck	ADT % Hvy.Truck	+/- % Grade
1. Las Posas Road														
a. Pleasant Valley	Ventura Blvd	4	100	64	0	55	9	9	9	38,000	97	2	1	
b. Ventura Blvd	Daily	5	84	76	12	40	"	"	"	54,000	"	"	"	
c. Daily	Ponderosa	"	"	"	"	"	"	"	"	37,000	"	"	"	
d. Ponderosa	Crestview	4	"	66	14	"	"	"	"	25,000	"	"	"	
e. Crestview	Carmen	"	82	62	10	45	"	"	"	24,000	"	"	"	
f. Carmen	Arneill	"	80	66	"	"	"	"	"	21,000	"	"	"	
g. Arneill	Temple	"	84	68	"	40	"	"	"	25,000	"	"	"	
h. Temple	Lewis	"	"	"	"	45	"	"	"	23,000	"	"	"	
2. Ponderosa Drive														
a. Earl Joseph	Bradford	2	42	24	0	40	9	9	9	4,000	97	2	1	
b. Bradford	Las Posas	4	84	64	2	"	"	"	"	"	"	"	"	
c. Las Posas	Rosewood	"	"	62	14	"	"	"	"	13,000	"	"	"	
d. Rosewood	Lantana	"	"	64	12	"	"	"	"	11,000	"	"	"	
e. Lantana	Carmen	"	"	"	"	"	"	"	"	14,000	"	"	"	
f. Carmen	Mobil	"	"	"	"	35	"	"	"	13,000	"	"	"	
g. Mobil	Arneill	"	"	"	"	"	"	"	"	10,000	"	"	"	
h. Arneill	Fulton	"	"	"	"	40	"	"	"	13,000	"	"	"	
i. Fulton	Temple	"	"	"	"	"	"	"	"	10,000	"	"	"	
j. Temple	Las Posas	"	"	"	"	35	"	"	"	9,000	"	"	"	
3. Daily Drive														
a. Las Posas	1,400 ft. West of Rosewood	2	60	48	12	30	9	9	9	14,000	95	3	2	
b. West of Rosewood	Carmen	"	"	"	"	40	"	"	"	9,000	"	"	"	
c. Carmen	Brently	"	"	"	"	35	"	"	"	14,000	"	"	"	
d. Brently	Mobil	"	"	"	"	40	"	"	"	"	"	"	"	
e. Mobil	Arneill	"	"	36	0	"	"	"	"	8,000	"	"	"	
f. Arneill	Fulton	"	"	"	"	30	"	"	"	14,000	"	"	"	
g. Fulton	Nellora	"	"	"	"	"	"	"	"	"	"	"	"	
h. Nellora	Lewis	"	"	"	"	"	"	"	"	11,000	"	"	"	
4. Crestview														
a. Las Posas	Avacado	2	60	60	12	40	9	9	9	11,000	98	2	0	
5. Carmen Drive														
a. Las Posas	Coe	4	84	52	12	40	9	9	9	8,000	99	1	0	
b. Coe	Ponderosa	"	"	"	"	"	"	"	"	10,000	"	"	"	
c. Ponderosa	Paseo Camarillo	"	"	"	"	35	"	"	"	13,000	"	"	"	
d. Paseo Camarillo	Ventura Blvd	"	"	40	"	"	"	"	"	18,000	"	"	"	
6. Arneill Road														
a. Las Posas	Dunnigan	4	89.5	52	12	40	9	9	9	16,000	97	2	1	
b. Dunnigan	Ponderosa	"	"	"	"	"	"	"	"	17,000	"	"	"	
c. Ponderosa	Pickwick	"	85	"	"	35	"	"	"	21,000	"	"	"	
d. Pickwick	Ventura Blvd	"	"	"	"	"	"	"	"	23,000	"	"	"	
7. Temple Avenue														
a. Las Posas	Ponderosa	4	84	64	12	40	9	9	9	7,000	99	1	0	
b. Ponderosa	Lewis	"	"	"	12	35	"	"	"	5,000	"	"	"	
8. Adolfo Road														
a. Ponderosa	Lewis	4	84	60	0	35	9	9	9	14,000	91	5	4	
b. Lewis	Flynn	"	102	"	12	40	"	"	"	21,000	"	"	"	
c. Flynn	Avenida Acaso	"	"	"	"	45	"	"	"	23,000	"	"	"	
d. Avenida Acaso	Mission Oaks	"	"	64	14	"	"	"	"	20,000	"	"	"	
e. Mission Oaks	Santa Rosa	"	"	"	"	35	"	"	"	28,000	"	"	"	
f. Santa Rosa	Los Pueblos	"	"	"	"	40	"	"	"	14,000	"	"	"	
g. Los Pueblos	Conejo Creek	"	"	"	"	45	"	"	"	3,000	"	"	"	

TABLE 5. FUTURE (2015) STREETS AND TRAFFIC DATA - CITY OF CAMARILLO

STREET NAME 2 of 2 from	to	# Traffic LANES	RIGHT OF WAY (ft)	CURB to CURB (ft)	MEDIAN WIDTH (ft)	SPEED LIMIT	Peak Hr. AUTOS	Peak Hr. Med.Truck	Peak Hr. Hvy.Trucks	TOTAL ADT	ADT % Autos	ADT % Med.Truck	ADT % Hvy.Truck	+/- % Grade
9. Upland Road														
a. Lewis	Woodcreek	4	94	52	12	45	9	9	9	17,000	99	1	0	3.5
b. Woodcreek	Mission Oaks	2	"	32	0	"	"	"	"	9,000	"	"	"	
c. Mission Oaks	"bend"	"	"	"	"	"	"	"	"	7,000	"	"	"	
d. "bend"	Paseo Noche	4	"	62	12	"	"	"	"	"	"	"	"	-5.0
e. Paseo Noche	Santa Rosa	2	60	26	0	40	"	"	"	6,000	"	"	"	-3.5
10. Mission Oaks Boulevard														
a. Dawson	1/2 way to Flynn	2	50	37	0	45	9	9	9	18,000	99	1	0	
b. 1/2 way to Flynn	Flynn			42	"	"	"	"	"	"	"	"	"	
c. Flynn	Callegues Creek	"	"	30	"	"	"	"	"	16,000	"	"	"	
d. Callegues Creek	Adolfo	"	"	"	"	"	"	"	"	19,000	"	"	"	
e. Adolfo	Creekside	4	94	78	14	"	"	"	"	22,000	"	"	"	5.0
f. Creekside	Woodcreek	"	"	"	"	"	"	"	"	14,000	"	"	"	-4.4
g. Woodcreek	Oak Canyon	"	"	"	"	"	"	"	"	7,000	"	"	"	-4.0
h. Oak Canyon	Fieldcrest	"	"	"	"	40	"	"	"	5,000	"	"	"	
i. Fieldcrest	Upland	"	"	"	"	"	"	"	"	"	"	"	"	4.0
11. Pleasant Valley Road														
a. Wood	Las Posas	2	n/a	42	0	50	9	9	9	24,000	82	9	9	
b. Las Posas	E. Fifth	"	"	25	"	55	"	"	"	9,000	"	"	"	
c. E. Fifth	Lewis	"	89	64	"	"	"	"	"	23,000	"	"	"	
d. Lewis	Pancho	"	120	40	"	"	"	"	"	16,000	91	5	4	
e. Pancho	101 Freeway	"	"	46	11	45	"	"	"	17,000	"	"	"	
12. Santa Rosa Road														
a. 101 Frwy	Verdugo	6	102	84	12	40	9	9	9	63,000	95	3	2	
b. Verdugo	Adolfo	"	"	"	"	"	"	"	"	47,000	"	"	"	
c. Adolfo	Woodcreek	4	84	56	14	45	"	"	"	27,000	"	"	"	
d. Woodcreek	Oak Canyon	"	"	56	"	"	"	"	"	26,000	"	"	"	
e. Oak Canyon	"City Limit"	2	"	47	"	"	"	"	"	22,000	"	"	"	
13. Woodcreek Road														
a. Santa Rosa	Mission Oaks	4	68	66	14	40	9	9	9	7,000	99	1	0	10.0
b. Mission Oaks	Fieldcrest	2	"	54	"	35	"	"	"	8,000	"	"	"	
c. Fieldcrest	Upland	"	"	"	"	35	"	"	"	5,000	"	"	"	
14. Flynn Road														
a. Mission Oaks	Maya Linda	2	68	40	0	45	9	9	9	13,000	91	5	4	
b. Maya Linda	Adolfo	4	"	52	"	"	"	"	"	7,000	"	"	"	
c. Adolfo	"1995 terminus"	"	"	"	"	40	"	"	"	9,000	"	"	"	
d. "1995 terminus"	Upland (future)	"	"	"	"	"	"	"	"	6,000	"	"	"	
15. Lewis Road														
a. Somis	Upland	2	100	52	0	50	9	9	9	24,000	91	5	4	
b. Upland	Adolfo	"	"	82	"	"	"	"	"	15,000	"	"	"	
c. Adolfo	Temple	"	"	"	"	"	"	"	"	16,000	"	"	"	
d. Temple	Barry	"	"	48	"	40	"	"	"	18,000	"	"	"	
e. Barry	Ventura Blvd	"	"	"	"	"	"	"	"	20,000	"	"	"	
f. Ventura Blvd	Pleasant Valley	"	"	52	"	"	"	"	"	17,000	"	"	"	
16. West Loop Drive														
a. Las Posas	"City Limit"	2	45	36	0	25	9	9	9	3,000	100	0	0	
17. 101 (Ventura Freeway)										LOS = C				
a. Conejo Scales	"base of grade"	7	160		42	55	9	9	9	117,000	94.1	3.7	2.2	-7.0
b. "base of grade"	Pleasant Valley	6	"		58	"	"	"	"	117,000	"	"	"	
c. Pleasant Valley	Dawson/Lewis	"	"		50	"	"	"	"	117,000	94.3	"	2.0	
d. Dawson/Lewis	Carmen	"	"		42	"	"	"	"	117,000	93.4	4.2	2.4	
e. Carmen	Las Posas	"	"		50	"	"	"	"	117,000	"	"	"	
f. Las Posas	Central	"	"		42	"	"	"	"	117,000	94.5	3.6	1.9	

TABLE 6. DISTANCES FROM CENTERLINES TO 1995 AND 2015 CNEL CONTOURS

STREET NAME		Existing		Projected														1 of 2
		ADT	Speed	ADT	Speed	CNEL at 50 Feet			Distances to CNEL Contours, 1995					Distances to CNEL Contours, 2015				
from	to	1995	1995	2015	2015	1995	2015	Change	60 dBA	65 dBA	70 dBA	75 dBA	80 dBA	60 dBA	65 dBA	70 dBA	75 dBA	80 dBA
1. Las Posas Road						dBA	dBA	dB	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet
a. Pleasant Valley	Ventura Blvd	22,000	55	38,000	55	74.3	76.7	2.4	346	163	81			496	232	112	59	
b. Ventura Blvd	Daily	34,000	40	54,000	40	74.4	76.5	2.1	275	133	73			372	177	91	55	
c. Daily	Ponderosa	23,000	"	37,000	"	72.8	74.8	2.0	214	107	62			290	140	75		
d. Ponderosa	Crestview	18,000	"	25,000	"	71.7	71.7	0.0	181	90	52			224	109	59		
e. Crestview	Carmen	16,000	45	24,000	45	72.4	72.5	0.1	202	99	54			262	125	65		
f. Carmen	Arneill	"	"	21,000	"	71.0	72.2	1.2	202	99	55			241	116	62		
g. Arneill	Temple	18,000	40	25,000	40	70.5	71.9	1.4	181	90	52			224	109	60		
h. Temple	Lewis	"	45	23,000	45	71.7	72.8	1.1	218	107	59			256	123	66		
2. Ponderosa Drive																		
a. Earl Joseph	Bradford	3,000	40	4,000	40	60.6	61.8	1.2	54					66				
b. Bradford	Las Posas	"	"	"	"	62.3	63.6	1.3	64					74				
c. Las Posas	Rosewood	10,000	"	13,000	"	67.6	68.7	1.1	125	65				147	75			
d. Rosewood	Lantana	11,000	"	11,000	"	68.2	68.2	0.0	133	69				133	69			
e. Lantana	Carmen	"	"	14,000	"	68.2	69.1	0.9	133	69				154	78			
f. Carmen	Mobil	13,000	35	13,000	35	67.5	67.5	0.0	121	64				121	64			
g. Mobil	Arneill	11,000	"	10,000	"	66.8	66.3	-0.5	110	59				103	57			
h. Arneill	Fulton	12,000	40	13,000	40	68.5	68.8	0.3	140	72				147	75			
i. Fulton	Temple	8,000	"	10,000	"	66.8	67.6	0.8	109	59				125	66			
j. Temple	Las Posas	6,000	35	9,000	35	64.2	65.8	1.6	78					97	54			
3. Daily Drive																		
a. Las Posas	1,400 ft. West of Rosewood	12,000	30	14,000	30	66.0	66.7	0.7	117	57				129	63			
b. West of Rosewood	Carmen	11,000	40	9,000	40	67.6	66.7	-0.9	147	71				129	63			
c. Carmen	Brently	14,000	35	14,000	35	67.4	67.4	0.0	143	69				143	69			
d. Brently	Mobil	13,000	40	"	40	68.3	68.6	0.3	163	78				172	82			
e. Mobil	Arneill	9,000	"	8,000	"	66.3	65.8	-0.5	127	60				118	56			
f. Arneill	Fulton	8,000	30	14,000	30	63.9	66.3	2.4	88					128	60			
g. Fulton	Nellora	14,000	"	14,000	"	66.3	66.3	0.0	128	60				128	60			
h. Nellora	Lewis	11,000	"	11,000	"	65.2	65.2	0.0	109	52				109	52			
4. Crestview																		
a. Las Posas	Avacado	7,000	40	11,000	40	64.3	66.2	1.9	88					116	58			
5. Carmen Drive																		
a. Las Posas	Coe	7,000	40	8,000	40	64.4	65.0	0.6	86					93				
b. Coe	Ponderosa	9,000	"	10,000	"	65.5	65.9	0.4	100	53				107	56			
c. Ponderosa	Paseo Camarillo	11,000	35	13,000	35	64.7	65.5	0.8	90					100	53			
d. Paseo Camarillo	Ventura Blvd	13,000	"	18,000	"	65.0	65.0	0.0	98	50				98				
6. Arneill Road																		
a. Las Posas	Dunnigan	15,000	40	16,000	40	68.7	69.0	0.3	160	79				167	82			
b. Dunnigan	Ponderosa	17,000	"	17,000	"	69.3	69.3	0.0	173	85				173	85			
c. Ponderosa	Pickwick	20,000	35	21,000	35	68.6	68.8	0.2	157	77				162	80			
d. Pickwick	Ventura Blvd	"	"	23,000	"	68.6	69.2	0.6	157	77				172	84			
7. Temple Avenue																		
a. Las Posas	Ponderosa	7,000	40	7,000	40	65.2	65.2	0.0	88	51				88	51			
b. Ponderosa	Lewis	5,000	35	5,000	35	62.1	62.1	0.0	61					61				
8. Adolfo Road																		
a. Ponderosa	Lewis	10,000	35	14,000	35	68.3	69.7	1.4	145	73				180	88			
b. Lewis	Flynn	15,000	40	21,000	40	71.3	72.7	1.4	220	106	57			274	131	67		
c. Flynn	Avenida Acaso	17,000	45	23,000	45	72.8	74.1	1.3	276	132	68			337	159	80		
d. Avenida Acaso	Mission Oaks	14,000	"	20,000	"	72.3	73.8	1.5	244	118	63			308	146	75		
e. Mission Oaks	Santa Rosa	"	35	28,000	35	70.3	73.3	3.0	181	90	51			283	135	70		
f. Santa Rosa	Los Pueblos	7,000	40	14,000	40	68.3	71.3	3.0	136	70				211	103	57		
g. Los Pueblos	Conejo Creek	1,000	45	3,000	45	60.8	65.6	4.8	54					93	53			

TABLE 6. DISTANCES FROM CENTERLINES TO 1995 AND 2015 CNEL CONTOURS

STREET NAME	2 of 2	Existing		Projected		CNEL at 50 Feet			Distances to CNEL Contours, 1994					Distances to CNEL Contours, 2015				2 of 2
		ADT	Speed	ADT	Speed													
from	to	1995	1995	2015	2015	1995	2015	Change	60 dBA	65 dBA	70 dBA	75 dBA	80 dBA	60 dBA	65 dBA	70 dBA	75 dBA	80 dBA
9. Upland Road						dBA	dBA	dB	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet	Feet
a. Lewis	Woodcreek	11,000	45	17,000	45	67.8	69.7	1.9	139	70				184	89			
b. Woodcreek	Mission Oaks	6,000	"	9,000	"	64.1	65.8	1.7	92					119	56			
c. Mission Oaks	"bend"	5,000	"	7,000	"	63.3	64.7	1.4	81					101				
d. "bend"	Paseo Noche	"	"	"	"	65.0	66.4	1.4	88					106	57			
e. Paseo Noche	Santa Rosa	3,000	40	6,000	40	59.6	62.6	3.0	-					74				
10. Mission Oaks Boulevard																		
a. Dawson	1/2 way to Flynn	9,000	45	18,000	45	65.9	68.9	3.0	120	57				189	89			
b. 1/2 way to Flynn	Flynn	"	"	"	"	66.0	69.0	3.0	120	57				189	89			
c. Flynn	Callegues Creek	4,000	"	16,000	"	62.3	68.3	6.0	70					175	82			
d. Callegues Creek	Adolfo	8,000	"	19,000	"	65.3	69.1	3.8	111	52				196	92			
e. Adolfo	Creekside (N)	11,000	"	22,000	"	69.7	72.7	3.0	143	76				220	109	62		
f. Creekside	Woodcreek	9,000	"	14,000	"	68.8	70.7	1.9	127	69				166	85	53		
g. Woodcreek	Oak Canyon	5,000	"	7,000	"	66.3	67.7	1.4	91	55				109	62			
h. Oak Canyon	Fieldcrest	3,000	40	5,000	40	62.6	64.8	2.2	62					77				
i. Fieldcrest	Upland	"	"	"	"	62.6	64.8	2.2	62					77				
11. Pleasant Valley Road																		
a. Wood	Las Posas	15,000	50	24,000	50	73.3	75.3	2.0	378	176	82			517	240	112	52	
b. Las Posas	E. Fifth	4,000	55	9,000	55	68.2	71.8	3.6	174	81				299	139	65		
c. E. Fifth	Lewis	13,000	"	23,000	"	73.4	75.8	2.4	382	178	83			559	260	121	57	
d. Lewis	Pancho	11,000	"	16,000	"	71.2	72.9	1.7	269	126	60			345	161	76		
e. Pancho	101 Freeway	12,000	45	17,000	45	70.1	71.6	1.5	218	103	51			275	129	62		
12. Santa Rosa Road																		
a. 101 Freeway	Verdugo	36,000	40	63,000	40	76.9	79.3	2.4	324	157	84	55		467	221	112	66	
b. Verdugo	Adolfo	30,000	"	47,000	"	76.1	78.0	1.9	288	141	78	53		385	184	96	60	
c. Adolfo	Woodcreek	18,000	45	27,000	45	71.8	73.5	1.7	241	116	60			315	149	75		
d. Woodcreek	Oak Canyon	16,000	"	26,000	"	71.2	73.3	2.1	224	108	57			307	145	73		
e. Oak Canyon	"City Limit"	13,000	"	22,000	"	69.4	71.7	2.3	194	92				274	129	63		
13. Woodcreek Road																		
a. Santa Rosa	Mission Oaks	6,000	40	7,000	40	64.7	65.3	0.6	82					89	51			
b. Mission Oaks	Fieldcrest	"	35	8,000	35	61.7	62.9	1.2	62					73				
c. Fieldcrest	Upland	5,000	"	5,000	"	60.9	60.9	0.0	56					56				
14. Flynn Road																		
a. Mission Oaks	Maya Linda	6,000	45	13,000	45	64.2	70.2	6.0	92					230	107	51		
b. Maya Linda	Adolfo	"	"	7,000	"	65.0	68.3	3.3	95	50				154	75			
c. Adolfo	"1995 terminus"	4,000	40	9,000	40	61.8	68.4	6.6	62					157	77			
d. "1995 terminus"	Upland (future)	n/a	n/a	6,000	"	n/a	66.7	n/a	n/a					121	61			
15. Lewis Road																		
a. Somis	Upland	15,000	50	24,000	50	71.9	74.0	2.1	290	136	65			397	185	87		
b. Upland	Adolfo	12,000	"	15,000	"	71.7	72.7	1.0	252	120	61			291	138	69		
c. Adolfo	Temple	13,000	"	16,000	"	72.1	72.9	0.8	265	126	64			304	143	71		
d. Temple	Barry	16,000	40	18,000	40	70.2	70.8	0.6	228	107	52			246	115	56		
e. Barry	Ventura Blvd	17,000	"	20,000	"	70.5	71.2	0.7	237	111	54			264	123	59		
f. Ventura Blvd	Pleasant Valley	15,000	"	17,000	"	70.0	70.6	0.6	218	103	50			237	111	54		
16. West Loop Drive																		
a. Las Posas	"City Limit"	2,500	25	3,000	25	52.7	53.5	0.8	-					-				
17. 101 (Ventura Freeway)				LOS=C		CNEL at 75 Feet								Level of Service = C				
a. Conejo Scales (N)	"base of grade" (N)	102,000	55	117,000	55	86.2	86.8	0.6	1,417	658	311	160	100	1,553	721	340	172	104
a. Conejo Scales (S)	"base of grade" (S)					88.7	89.3	0.6	1,365	642	312	166	106	1,379	649	315	168	107
b. "base of grade"	Pleasant Valley	102,000	55	117,000	55	84.4	85.0	0.6	1,205	564	272	144	93	1,320	617	296	154	97
c. Pleasant Valley	Dawson/Lewis	110,000	"	"	"	83.3	83.6	0.3	1,248	583	279	145	91	1,300	607	290	150	93
d. Dawson/Lewis	Carmen	100,000	"	"	"	82.2	82.9	0.7	1,218	569	271	140	87	1,351	631	299	152	91
e. Carmen	Las Posas	114,000	"	"	"	83.7	83.9	0.2	1,329	621	296	153	94	1,352	631	301	155	95
f. Las Posas	Central (LOS = C)	117,000	"	"	"	82.6	82.6	0.0	1,287	601	286	146	89	1,287	601	286	146	89

TABLE 7.

INTERIOR AND EXTERIOR NOISE STANDARDS FOR TRANSPORTATION RELATED NOISE

NOISE SENSITIVE LAND USE CATEGORIES		DAY / NIGHT AVERAGE LEVEL (L_{dn})	
CATEGORIES	LAND USES	INTERIOR[a]	EXTERIOR[b]
RESIDENTIAL	Single Family, Multiple Family	45	60
	Mobile Home	45[c]	< 60[c]
COMMERCIAL	Hotel, Motel, Dormitory, Other Transient Lodging, Other Use with Sleeping Quarters	45	---
INSTITUTIONAL	Hospital, Nursing Facility, Educational Classrooms	45	---
	Place of Worship, Library	45	---

Notes:

a. Interior environment excluding: Bathrooms, toilets, closets, corridors and other normally unoccupied spaces. All interior noise level requirements can only be met with windows closed when the exterior noise level exceeds an L_{dn} 55 to 60. In such cases, a mechanical ventilating system or other means of natural ventilation shall be provided as described in Chapter 12, Section 1205 of UBC to replace the need to open windows for ventilation.

b. Exterior environment limited to:
   Private yard of single family;
   Multi-family private patio which is served by a means of exit from inside; and
   Mobile home park.

c. Exterior noise level should be such that interior noise level will not exceed 45 L_{dn}.

Source: EPA, 1974

Table 8

Subjective Effect of Changes in Sound Pressure Level

Change in Sound Pressure Level, dB	Change in Pressure Amplitude, Pa		Change in Subjective Loudness
	Decreasing	Increasing	
3	1/2	2	Just perceptible
5	1/3	3	Clearly noticeable
10	1/10	10	Half or twice as load
20	1/100	100	Much quieter or louder

Source: Bies and Hansen, 1988.

Table 9

Recommended Sound Level Meter Features

Required Features	Additional Desired .Features
A-weighting	C-weighting
Slow meter response	Fast meter response
30 to 100 dBA measuring range	Max hold mode
Selectable integrating time (for integrating meter)	Pause switch (for integrating meter)
Lightweight	Digital display

Source: Advanced Engineering Acoustics

APPENDICES

APPENDIX A

GLOSSARY OF TERMS

A-WEIGHTED SOUND LEVEL (dBA or dB(A)). The sound pressure level in decibels as measured on a sound level meter using the A-Weighted filter network. It is a numerical method of rating human judgment of loudness. The A-Weighting filter is an electronic network built in to most of the sound level meters in use today, and causes the meter to measure sound in much the same way that people hear sound. That is, the A-weighting is increasingly less sensitive as the frequency or pitch becomes lower than 1000 Hertz or higher than 4000 Hertz (for reference, telephones normally ring at frequencies between 500 and 3000 Hertz).

AMBIENT NOISE LEVEL. The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

CNEL Contours. Lines drawn around a noise source indicating constant or equal level of the Community Noise Equivalent Level.

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL). CNEL is a rating of the 24-hour average noise level in an environment which accounts for peoples increased annoyance to noise occurring in the evening and nighttime hours. It is the average equivalent A-Weighted sound level during a 24-hour day, calculated after adding five (5) decibels to sound levels which occur in the evening after 7 p.m. and before 10 p.m., and ten (10) decibels to sound levels which occur m the night after 10 p.m. and before 7 a.m. Note: CNEL is generally considered approximately equal to L_{dn} since they are generally within 0.5 dBA of each other. Although the noise contour maps have been developed using the L_{dn} noise metric, CNEL is described here since some of the environmental noise criteria developed in California and referenced in the technical report are based on CNEL. According to the current State guidelines, CNEL is an optional noise descriptor which can be used in the preparation of Noise Elements.

DAY-NIGHT AVERAGE LEVEL (L_{dn}). L_{dn}, like CNEL, is a rating of the 24-hour average noise level in an environment which accounts for peoples increased annoyance to noise occurring in the nighttime hours. It is the average equivalent A-Weighted sound level during a 24-hour day, calculated after adding ten (10) decibels to sound levels which occur in the night after 10 p.m. and before 7 a.m. In the L_{dn} scale, those events that take place during the night (10 p.m. to 7 a.m.) are penalized by 10 dB. This penalty was selected to attempt to account for increased human sensitivity to noise during the quieter nighttime period, where sleep is the most probable activity.

DECIBEL (dB). The decibel is the common unit for measuring sound level and is generally provided on most sound level meters. The decibel is equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound being measured over the reference pressure, which is 20 micropascals.

EQUIVALENT SOUND LEVEL (L_{eq}). L_{eq} is the average sound level in an environment where the sound level changes, however, the L_{eq} is not a simple arithmetic average of the sound level over time, but is a logarithmic average. L_{eq} is the "energy" average noise level over a period of time. L_{eq} can be measured for any time period, but is typically measured for some increment of time such as a fraction of an hour, e.g., 15 minutes, or for 1 hour or even a full 24-hours.

EXCESSIVE NOISE ZONES. For the Camarillo Noise Element, noise may be excessive when it exceeds an CNEL of 60 dBA. Exterior noise mitigation may be required to meet the interior noise requirement at noise-sensitive land uses if building windows are expected to be kept open for ventilation purposes. Where the noise level exceeds an CNEL of 65 dBA, exterior living space at noise-sensitive land uses will require noise mitigation. Any proposed noise-sensitive development which may be impacted by a total CNEL of 60 dBA or more should be evaluated in a noise study report which demonstrates that the exterior and interior noise standards can be met and possibly require the implementation of noise control measures to do so.

EXTERIOR LIVING SPACE. The exterior living space refers to noise-sensitive land uses only and includes private yards of single-family residences, private patios of multi-family residences which have a dwelling entry accessing them, all exterior areas of mobile home parks, and any other private exterior area of a noise-sensitive land use where people are expected to spend time in leisure and relaxation.

FREQUENCY. Tone or pitch. The frequency range of human beings is approximately 20 to 20,000 hertz in a young healthy person. Frequency refers to the number of times per second that sound pressure oscillates above and below the ambient barometric pressure. The unit of frequency is hertz. The abbreviation is Hz.

INTRUSIVE NOISE. That noise which intrudes over and above the ambient noise at a given location. The relative intrusiveness of noise depends upon its sound level, duration, frequency, time of occurrence, and characteristics of the noise such as tones or abruptness.

L_{10}. See Percentile Noise Level.

L_{eq}. See Equivalent Sound Level.

L_{max}. The maximum A-weighted sound level that occurred during a measurement period with the sound level meter set on slow response.

micropascals. The Pascal (a unit of measurement) is one way of describing pressure such as air pressure. 20 micropascals (0.00002 Pascals) is a reference quantity which can be used when describing the fluctuations of air pressure created by sound waves.

NOISE. Any unwanted sound or sound which is undesirable because it interferes with speech, hearing, sleep, or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive, undesirable sound...".

NOISE ATTENUATION. Noise reduction. The ability of a material, substance, or medium to reduce the noise level from one place to another or between one room and another. Noise attenuation is specified in decibels.

NOISE-SENSITIVE LAND USE. Those specific land uses which have associated indoor and/or outdoor human activities that may be subject to speech, hearing or sleep interference, and/or annoyance from noise produced by community sound sources. Such human activity typically occurs daily for continuous period of 24 hours or is of such a nature that noise is significantly disruptive to activities that occur for short periods. Specifically, noise-sensitive land uses include:

- single- and multifamily residences
- mobile homes
- transient lodging such as motels and hotels
- dormitories
- hospitals
- convalescent care and rest/nursing facilities
- any other use which contains sleeping quarters
- places of worship
- libraries
- educational facilities
- auditoriums

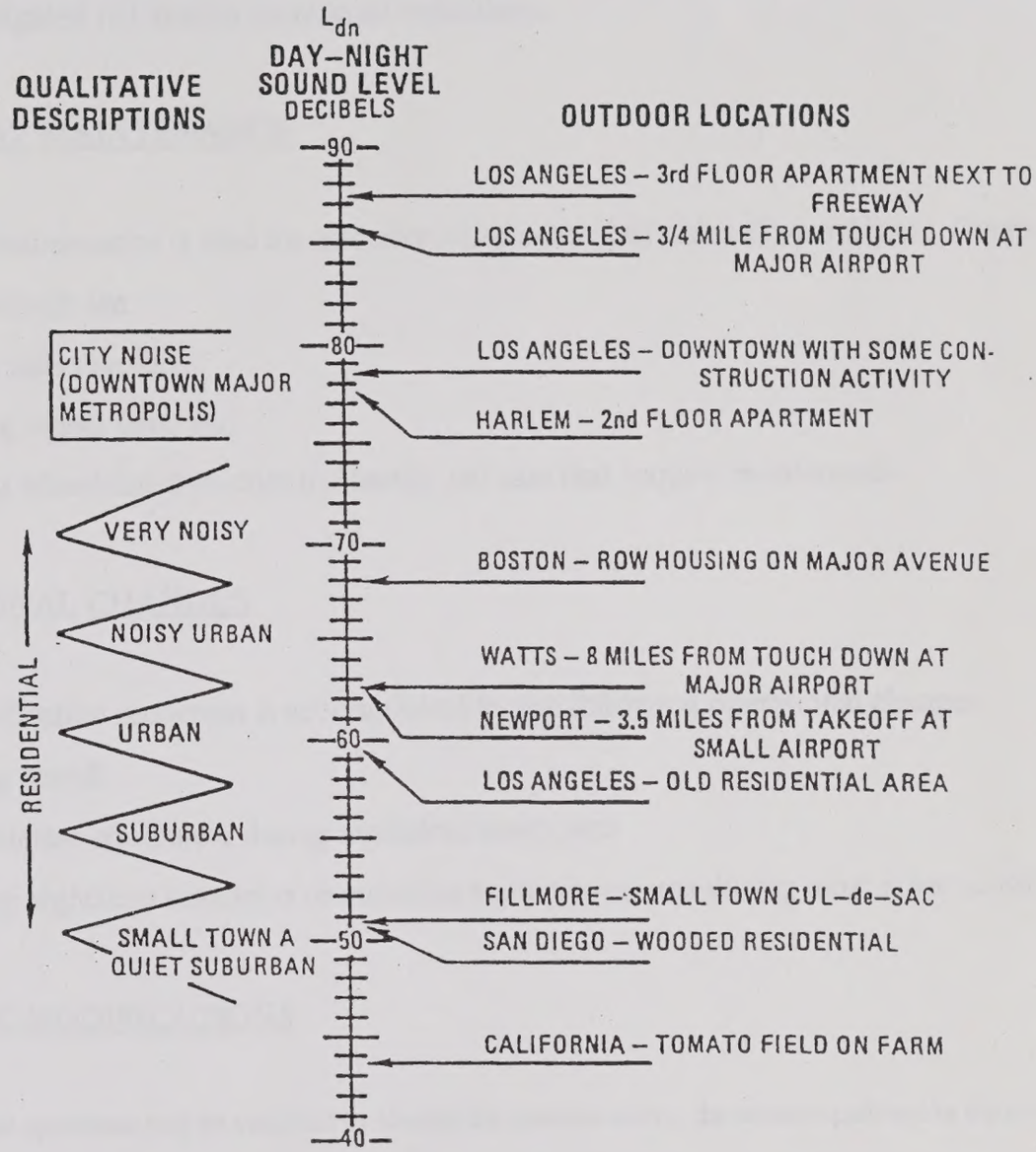
PERCENTILE NOISE LEVEL (L_{XX}). The level exceeded xx% of the time during a measurement period. For example, The A-Weighted sound level exceeded 10 percent of the sample time, L_{10}. Similarly used are L_{50}, L_{25}, L_{90}, etc.

SOUND LEVEL (NOISE LEVEL). The magnitude or quantity of sound expressed in decibels, and may be obtained by use of a sound level meter.

SOUND LEVEL METER. An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels. For purposes of conducting noise measurements for studies required by the City of Camarillo Noise Element, a "Type 2" or better sound level meter should be used according to the American National Standards Institute (ANSI) S 1.4 standards.

APPENDIX B

TYPICAL OUTDOOR Ldn/CNEL SOUND LEVELS FOR VARIOUS LOCATIONS



Source: EPA, 1974

APPENDIX C

SUMMARY OF RAILROAD NOISE REDUCTION METHODS

There are several methods by which rail operation noise may be mitigated. Among them are equipment maintenance, operational changes and acoustic modification. Table A-1 gives expected mitigated rail system noise level reductions.

EQUIPMENT MAINTENANCE

Equipment maintenance is vital for effective noise control of railroad operations. The most effective methods are:

- grinding rails regularly;
- removing wheel flats; and
- installing wheel-flat detectors to identify rail cars that require maintenance.

OPERATIONAL CHANGES

Noise and vibration reduction is accomplished by the following operational changes:

- reducing speed;
- using quietest equipment during nighttime hours; and
- adjusting nighttime schedules to minimize train movements during most noise sensitive hours.

ACOUSTIC MODIFICATIONS

Noise from rail operations may be mitigated by altering the acoustic source, the acoustic path and/or the acoustic receptor. Examples are:

- acoustically treat engine exhaust;
- use welded rather than jointed rails;
- require large set-backs for planned adjacent residential developments;
- install noise barriers to break the line-of-sight between wheels and noise receivers; and
- install double glazed windows in noise sensitive buildings.

Table C-1. EXPECTED MITIGATED RAIL OPERATIONS NOISE REDUCTION

Unmitigated vs. Mitigated Condition	Typical Noise Level Difference, dBA
1. Rough welded rails/ground smooth welded rails	4
2. Rough wheels/trued smooth wheels	5
3. Corrugated rails/uncorrugated rails	10
4. Wheels with flats/trued smooth wheels	12
5. Jointed rail/welded rail	
(a) Passenger cars	7
(b) Freight cars, mainline track	2
(c) Freight cars, low-speed track	6
6. Switch/no switch	6
7. Standard wheels/wheels with viscoelastic damping	1
8. Standard wheels/wheels with ring damping	1
9. Standard wheels/wheels with resilient-mounted rims	2
10. Regular speed/half speed	9

Source: Handbook of Acoustical Measurements and Noise Control, C. M. Harris, McGraw-Hill, 1991.